

ANNUAL REGISTER

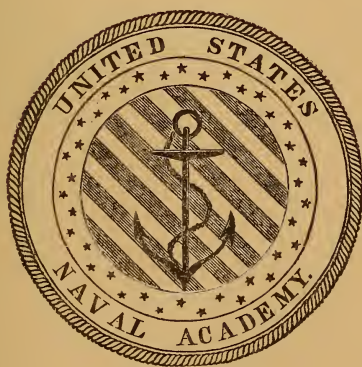
OF THE

UNITED STATES NAVAL ACADEMY,

ANNAPOLIS, MD.

FORTIETH ACADEMIC YEAR.

1889-'90.



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GOVERNMENT PRINTING OFFICE.
1889.

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THE UNITED STATES NAVAL ACADEMY.

The United States Naval Academy was founded in 1845 by the Hon. George Bancroft, Secretary of the Navy, in the administration of President James K. Polk. It was formally opened October 10, of that year, under the name of the Naval School, with Commander Franklin Buchanan as superintendent. It was placed at Annapolis, Md., on the land occupied by Fort Severn, which was given up by the war department for the purpose. The course was fixed at five years, of which only the first and the last were spent at the school, the intervening three being passed at sea. This arrangement was not strictly adhered to, the exigencies of the service making it necessary, in many cases, to shorten the period of study. In January, 1846, four months after the opening of the school, the students consisted of 36 midshipmen, of the date of 1840, who were preparing for the examination for promotion; 13 of the date of 1841, who were to remain until drafted for service at sea; and 7 acting midshipmen, appointed since September of the previous year. The midshipmen of the date of 1840 were the first to be graduated, finishing their limited course in July, 1846, and they were followed in order by the subsequent dates until the reorganization of the school in 1850.

In September, 1849, the following board was appointed to revise the plan and the regulations of the naval school:

Commander William B. Shubrick,
Commander Franklin Buchanan,
Commander Samuel F. Du Pont,
Commander George P. Upshur,
Surgeon W. S. W. Ruschenberger,
Professor William Chauvenet,
Captain Henry Brewerton, U. S. Army.

The plan reported by the board was approved, and went into operation July 1, 1850. The new organization provided for a course of seven years, the first two and the last two at the school and the three intermediate years at sea. The school was placed under the supervision of the bureau of ordnance and hydrography, and its name was changed to the United States Naval Academy. The corps of professors was enlarged, the course was extended, and the system of separate departments with executive heads was fully adopted. It was provided that a board of visitors should make an annual inspection of the academy, and report upon its condition to the Secretary of the Navy. A suitable vessel was attached to the academy as a practice-ship, and the annual practice-cruises were begun.

After the system had been in operation a year, new changes were proposed, and the recommendations of the academic board on the subject were referred to the board of examiners for the year 1851, composed of the following-named officers:

Commodore David Conner,
Captain Samuel L. Breese,
Commander C. K. Stribling,
Commander A. Bigelow,
Commander Franklin Buchanan,
Lieutenant Thomas T. Craven.

The change recommended by the board of examiners, and adopted by the Department, consisted mainly in leaving out the requirement of three years of sea-service

in the middle of the course, thus making the four years of study consecutive. The practice-cruise supplied the place of the omitted sea-service, and gave better opportunities of training. The change went into operation in November, 1851, together with other improvements recommended by the board. This system has been continued, with some slight modifications, to the present time. The first class to receive the benefit of it was that which entered in 1851. Six members of this class completed the course in three years, and were graduated in June, 1854; the rest of the class followed in 1855.

In May, 1861, on the outbreak of the war, the academy was removed to Newport, R. I. The three upper classes were detached and ordered to sea, and the remaining acting midshipmen were quartered in the Atlantic House and on board the frigates Constitution and Santee. In the summer of 1865 the academy was moved back to Annapolis, where it has since remained.

When the bureau of navigation was established, July 5, 1862, the academy was placed under its supervision; March 1, 1867, it was placed under the direct care and supervision of the navy department, the administrative routine and financial management being still conducted through the bureau. On the 11th of March, 1869, this official connection with the bureau ceased, but was renewed by the general order of the navy department issued June 25, 1889.

The term of the academic course was changed by law, March 3, 1873, from four to six years. The change took effect with the class that entered in the following summer.

In 1866 a class of acting third-assistant engineers was ordered to the academy for instruction. The course embraced the subjects of steam-engineering, mechanism, chemistry, mechanics, and practical exercises with the steam-engine and in the machine-shop. This class was graduated in June, 1868, together with two cadet-engineers who had entered the academy in 1867. After an interval of four years, in October, 1871, a new class of cadet-engineers was admitted. This class followed a two years' course, somewhat more extended than that of the class of 1868, and was graduated in 1873. In 1872 and in 1873 new classes were admitted, the first of which left the academy in 1874 and the second in 1875. By an act of congress, approved February 24, 1874, the course of instruction for cadet-engineers was made four years instead of two; the new provision was first applied to the class entering the academy in the year 1874. This class was graduated in June, 1878.

By an act of congress, approved August 5, 1882, it was provided that from that date "there shall be no appointments of cadet-midshipmen or cadet-engineers at the naval academy, but in lieu thereof naval cadets shall be appointed from each congressional district and at large, as now provided by law for cadet-midshipmen, and all the undergraduates at the naval academy shall thereafter be designated and called 'naval cadets'; and, from those who successfully complete the six years' course, appointments shall hereafter be made as it is necessary to fill vacancies in the lower grades of the line and engineer corps of the navy and of the marine corps: *And provided further*, That no greater number of appointments into these grades shall be made each year than shall equal the number of vacancies which have occurred in the same grades during the preceding year, such appointments to be made from the graduates of the year at the conclusion of their six years' course, in order of merit, as determined by the academic board of the naval academy; the assignment to the various corps to be made by the Secretary of the Navy upon the recommendation of the academic board. But nothing herein contained shall reduce the number of appointments from such graduates below ten in each year, nor deprive of such appointment any graduate who may complete the six years' course during the year 1882. And if there be a surplus of graduates, those who did not receive such appointment shall be given a certificate of graduation, an honorable discharge, and one year's sea-pay, as now provided by law for cadet-midshipmen; and so much of section 1521 of the Revised Statutes as is inconsistent herewith is hereby repealed."

"That any cadet whose position in his class entitles him to be retained in the service may, upon his own application, be honorably discharged at the end of the four years' course at the naval academy, with a proper certificate of graduation."

The act of congress, approved March 2, 1889, provides that "the academic board of the naval academy shall on or before the thirtieth day of September in each year separate the first class of naval cadets then commencing their fourth year into two divisions, as they may have shown special aptitude for the duties of the respective corps, in the proportion which the aggregate number of vacancies occurring in the preceding fiscal year ending on the thirtieth day of June in the lowest grades of commissioned officers of the line of the navy and marine corps of the navy shall bear to the number of vacancies to be supplied from the academy occurring during the same period in the lowest grade of commissioned officers of the engineer corps of the navy; and the cadets so assigned to the line and marine corps division of the first class shall thereafter pursue a course of study arranged to fit them for service in the line of the navy, and the cadets so assigned to the engineer corps division of the first class shall thereafter pursue a separate course of study arranged to fit them for service in the engineer corps of the navy, and the cadets shall thereafter, and until final graduation at the end of their six years' course, take rank by merit with those in the same division, according to the merit marks; and from the final graduates of the line and marine corps division, at the end of their six years' course, appointments shall be made hereafter as it shall be necessary to fill vacancies in the lowest grades of commissioned officers of the line of the navy and marine corps; and the vacancies in the lowest grades of the commissioned officers of the engineer corps of the navy shall be filled in like manner by appointments from the final graduates of the engineer division at the end of their six years' course: *Provided*, That no greater number of appointments into the said lowest grades of commissioned officers shall be made each year than shall equal the number of vacancies which shall have occurred in the same grades during the fiscal year then current; such appointments to be made from the final graduates of the year, in the order of merit as determined by the academic board of the naval academy, the assignment to be made by the Secretary of the Navy upon the recommendation of the academic board at the conclusion of the fiscal year then current; but nothing contained herein or in the naval appropriation act of August fifth, eighteen hundred and eighty-two, shall reduce the number of appointments of final graduates at the end of their six years course below twelve in each year to the line of the navy, and not less than two shall be appointed annually to the engineer corps of the navy, nor less than one annually to the marine corps; and if the number of vacancies in the lowest grades aforesaid, occurring in any year shall be greater than the number of final graduates of that year, the surplus vacancies shall be filled from the final graduates of following years, as they shall become available."

"That after the fourth day of March, eighteen hundred and eighty-nine, the minimum age of admission of cadets to the academy shall be fifteen years and the maximum age twenty years."

SUPERINTENDENTS
OF THE
UNITED STATES NAVAL ACADEMY.

Assumed command:

- Sept. 3, 1845.—Commander Franklin Buchanan.
Mar. 15, 1847.—Commander George P. Upshur.
July 1, 1850.—Commander Cornelius K. Stribling.
Nov. 1, 1853.—Commander Louis M. Goldsborough.
Sept. 15, 1857.—Captain George S. Blake.
Sept. 9, 1865.—Rear-Admiral David D. Porter.
Dec. 1, 1869.—Commodore John L. Worden.
Sept. 22, 1874.—Rear-Admiral C. R. P. Rodgers.
July 1, 1878.—Commodore Foxhall A. Parker.
Aug. 2, 1879.—Rear-Admiral George B. Balch.
June 13, 1881.—Rear-Admiral C. R. P. Rodgers.
Nov. 14, 1881.—Captain F. M. Ramsay.
Sept. 9, 1886.—Commander W. T. Sampson.

BOARD OF VISITORS, JUNE, 1889.

Commodore GEORGE BROWN, U. S. Navy, *President.*

Hon. M. C. BUTLER, U. S. Senate, *Vice President.*

Hon. H. M. TELLER	U. S. Senate.
Hon. H. A. HERBERT	House of Representatives.
Hon. C. H. GROSVENOR	House of Representatives.
Hon. WM. MCADOO	House of Representatives.
Professor OREN ROOT	Hamilton College, New York.
T. C. MENDENHALL	President Rose Polytechnic Institute, Indiana.
General F. A. WALKER	President Massachusetts Institute Technology.
L. C. GARLAND, LL.D.	Chancellor Vanderbilt University, Tennessee.
General STEWART L. WOODFORD	New York.
Governor JAMES A. BEAVER	Pennsylvania.

ACADEMIC CALENDAR.

1889-1890.

1889.

October 1.—Beginning of first term.....Tuesday.

1890.

Jan. 27-Feb. 1.—Semi-annual examinationMonday-Saturday.

February 1.—End of first term.....Saturday.

June 2-7.—Annual examinationMonday-Saturday.

May 31.—End of academic year, 1889-90.....Saturday.

May 15.—Examination of candidates for admission as naval
cadets.....Thursday.

September 2.—Examination of candidates for admission as naval
cadets.....Tuesday.

October 1.—Beginning of first term, 1890-91.....Wednesday.

The academic months end on the following days; viz.,

1889-1890.

October	Nov. 2	February.....	Mar. 1
November	Nov. 30	March.....	Mar. 29
December	Dec. 28	April	Apr. 26
January	Jan. 25	May	May 24

1890-1891.

October	Nov. 1	December	Dec. 27
November	Nov. 29	January	Jan. 24

SEPTEMBER.							MARCH.						
Sun.	M.	T.	W.	T.	F.	Sat.	Sun.	M.	T.	W.	T.	F.	Sat.
1	2	3	4	5	6	7	2	3	4	5	6	7	1
8	9	10	11	12	13	14	9	10	11	12	13	14	8
15	16	17	18	19	20	21	16	17	18	19	20	21	15
22	23	24	25	26	27	28	23	24	25	26	27	28	22
29	30	---	---	---	---	---	30	31	---	---	---	---	29
---	---	---	---	---	---	---	---	---	---	---	---	---	---
OCTOBER.							APRIL.						
---	---	1	2	3	4	5	---	---	1	2	3	4	5
6	7	8	9	10	11	12	6	7	8	9	10	11	12
13	14	15	16	17	18	19	13	14	15	16	17	18	19
20	21	22	23	24	25	26	20	21	22	23	24	25	26
27	28	29	30	31	---	---	27	28	29	30	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---	---	---
NOVEMBER.							MAY.						
---	---	---	---	---	1	2	---	---	---	---	1	2	3
3	4	5	6	7	8	9	4	5	6	7	8	9	10
10	11	12	13	14	15	16	11	12	13	14	15	16	17
17	18	19	20	21	22	23	18	19	20	21	22	23	24
24	25	26	27	28	29	30	25	26	27	28	29	30	31
---	---	---	---	---	---	---	---	---	---	---	---	---	---
DECEMBER.							JUNE.						
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30	31	---	---	---	---	29	30	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---	---	---
JANUARY.							SEPTEMBER.						
---	---	---	1	2	3	4	---	---	1	2	3	4	5
5	6	7	8	9	10	11	7	8	9	10	11	12	13
12	13	14	15	16	17	18	14	15	16	17	18	19	20
19	20	21	22	23	24	25	21	22	23	24	25	26	27
26	27	28	29	30	31	---	28	29	30	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---	---	---
FEBRUARY.							OCTOBER.						
---	---	---	---	---	---	1	---	---	---	---	1	2	3
2	3	4	5	6	7	8	5	6	7	8	9	10	11
9	10	11	12	13	14	15	12	13	14	15	16	17	18
16	17	18	19	20	21	22	19	20	21	22	23	24	25
23	24	25	26	27	28	---	26	27	28	29	30	31	---

OFFICERS
ATTACHED TO THE
UNITED STATES NAVAL ACADEMY.

SUPERINTENDENT,
CAPTAIN W. T. SAMPSON.

Assistant to the Superintendent in charge of Buildings and Grounds,

LIEUTENANT E. K. MOORE.

Assistant to the Superintendent and Secretary of the Academic Board,

LIEUTENANT R. G. PECK.

Commandant of Cadets,
COMMANDER H. GLASS.

Assistants to the Commandant of Cadets,

LIEUTENANT-COMMANDER W. W. GILLPATRICK,
LIEUTENANT W. P. POTTER,
LIEUTENANT C. D. GALLOWAY,
LIEUTENANT DAVID DANIELS.

SEAMANSHIP, NAVAL TACTICS, AND NAVAL CONSTRUCTION.

Head of Department,
COMMANDER C. D. SIGSBEE.

Assistants,
LIEUTENANT W. P. CLASON,
ASSISTANT NAVAL CONSTRUCTOR R. GATEWOOD,
LIEUTENANT T. M. POTTS.

Instructor in Boxing, Swimming, and Gynastics,
MATTHEW STROHM.

ORDNANCE AND GUNNERY.

Head of Department,

LIEUTENANT-COMMANDER C. S. SPERRY.

*Assistants,*LIEUTENANT C. G. BOWMAN,
LIEUTENANT H. C. GEARING,
ENSIGN C. H. HARLOW.*Sword-Master,*

A. J. CORBESIER.

*Assistant Sword-Masters,*J. B. RETZ,
G. HEINTZ.

ASTRONOMY, NAVIGATION, AND SURVEYING.

Head of Department,

LIEUTENANT-COMMANDER A. WALKER.

*Assistants,*LIEUTENANT-COMMANDER W. T. SWINBURNE,
LIEUTENANT G. B. HARBER,
LIEUTENANT W. F. LOW.

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Head of Department,

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*Assistants,*PASSED-ASSISTANT ENGINEER J. K. BARTON,
PASSED-ASSISTANT ENGINEER R. G. DENIG,
PASSED-ASSISTANT ENGINEER W. N. LITTLE,
PASSED-ASSISTANT ENGINEER F. H. ELDRIDGE,
ASSISTANT ENGINEER W. H. ALLDERDICE.

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*Assistants,*LIEUTENANT-COMMANDER J. P. MERRELL,
LIEUTENANT E. P. WOOD,
ENSIGN JOHN HOOD,
ENSIGN E. E. CAPEHART.

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Assistants,

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LIEUTENANT W. G. CUTLER,
LIEUTENANT B. T. WALLING.
LIEUTENANT O. G. DODGE,
ENSIGN R. H. MINER,
PROFESSOR C. R. SANGER, A. M., PH. D.

MATHEMATICS.

Head of Department,

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Assistants,

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LIEUTENANT H. H. HOSLEY,
LIEUTENANT J. M. ORCHARD
ENSIGN H. G. DRESEL,
ENSIGN H. PHELPS,
ENSIGN C. S. WILLIAMS.

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Head of Department,

CHAPLAIN E. K. RAWSON, B. A.

Assistants,

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LIEUTENANT J. B. BRIGGS,
LIEUTENANT J. C. CRESAP,
LIEUTENANT E. B. UNDERWOOD,
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PROFESSOR W. W. FAY, A. M.

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Assistants,

LIEUTENANT A. C. BAKER,
PROFESSOR L. F. PRUD'HOMME, A. M.,
ENSIGN W. E. SAFFORD,
PROFESSOR J. LEROUX,
ASSISTANT PROFESSOR H. DALMON,
ASSISTANT PROFESSOR H. MARION,
ASSISTANT PROFESSOR S. GARNER.

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Head of Department,

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PROFESSOR M. OLIVER,
ASSISTANT PROFESSOR C. F. BLAUVELT.

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MEDICAL INSPECTOR B. H. KIDDER, M. D.

Assistants,

SURGEON G. E. H. HARMON, M. D.,

PASSED-ASSISTANT SURGEON C. W. RUSH, M. D.,

PASSED-ASSISTANT SURGEON J. D. GATEWOOD, M. D.

Professor of Mathematics,

W. W. JOHNSON, A. M.

OFFICERS NOT ATTACHED TO THE ACADEMIC STAFF.

LIEUTENANT-COMMANDER S. W. VERY, *in charge of Ships.*PAY INSPECTOR J. H. STEVENSON, *Commissary and General Storekeeper.*PAY INSPECTOR T. T. CASWELL, *Pay Officer.*

ASSISTANT SURGEON C. H. T. LOWNDES, M. D.

ASSISTANT PROFESSOR A. N. BROWN, *Librarian.*J. M. SPENCER, *Assistant Librarian.*R. M. CHASE, *Secretary.**Attached to the Ships,*

BOATSWAIN J. S. SINCLAIR,

GUNNER R. SOMMERS,

CARPENTER G. W. CONOVER.

MATES.

Attached to the Santee, the Wyoming, and the Phlox,

S. GEE,

B. G. PERRY,

C. J. MURPHY,

W. G. SMITH.

MARINE OFFICERS.

CAPTAIN H. A. BARTLETT, *Commanding Marines,*

CAPTAIN J. M. T. YOUNG,

SECOND LIEUTENANT T. C. PRINCE.

ACADEMIC BOARD.

THE SUPERINTENDENT.

THE COMMANDANT OF CADETS.

THE HEAD OF THE DEPARTMENT OF SEAMANSHIP, NAVAL TACTICS, AND NAVAL CONSTRUCTION.

THE HEAD OF THE DEPARTMENT OF ORDNANCE AND GUNNERY.

THE HEAD OF THE DEPARTMENT OF ASTRONOMY, NAVIGATION, AND SURVEYING.

THE HEAD OF THE DEPARTMENT OF STEAM-ENGINEERING.

THE HEAD OF THE DEPARTMENT OF MECHANICS AND APPLIED MATHEMATICS.

THE HEAD OF THE DEPARTMENT OF PHYSICS AND CHEMISTRY.

THE HEAD OF THE DEPARTMENT OF MATHEMATICS.

THE HEAD OF THE DEPARTMENT OF ENGLISH STUDIES, HISTORY, AND LAW.

THE HEAD OF THE DEPARTMENT OF MODERN LANGUAGES.

THE HEAD OF THE DEPARTMENT OF MECHANICAL DRAWING.

THE HEAD OF THE DEPARTMENT OF PHYSIOLOGY AND HYGIENE.

CADET OFFICERS.

CADET-LIEUTENANT-COMMANDER,

T. F. RUHM.

CADET-LIEUTENANTS,

A. GARTLEY,
M. H. SIGNOR,F. H. SCHOFIELD,
C. B. McVAY.

CADET-MASTER AND ADJUTANT,

W. H. BUCK.

CADET-MASTERS,

H. J. ZIEGEMEIER,
C. DAVIS,L. SPEAR,
W. C. NEVILLE.

CADET-ENSIGNS,

J. V. CHASE,
L. H. EVERHART,M. M. TAYLOR,
N. T. COLEMAN.*Cadet-petty-officers of the first class,*SNOW,
LATIMER,
RADFORD,
WILLIAMS,PRICE,
CATLIN,
VOGELGESANG,
BLANKENSHIP,SULLIVAN,
MOFFETT,
RITTER,
HOLMES,BOSTWICK,
EDIE,
BAILEY,
DAYTON.*Cadet-petty-officers of the second class,*ZAHM,
GILLMOR,STEARNS,
NINDE,SMITH, L. G.,
BELKNAP,WILLARD,
HARTUNG.

SUMMER CRUISE, 1889.

OFFICERS AND NAVAL CADETS.

UNITED STATES PRACTICE-SHIP CONSTELLATION.

*May 7 to June 24.*COMMANDER P. F. HARRINGTON, *Commanding.*
LIEUTENANT-COMMANDER W. T. SWINBURNE,
*Executive Officer.*LIEUTENANT W. F. LOW, *Navigator.*
LIEUTENANT A. MCCrackIN, *Watch Officer.*
LIEUTENANT T. B. HOWARD, *Watch Officer.*
LIEUTENANT T. M. POTTS, *Watch Officer.*
LIEUTENANT J. M. ORCHARD, *Watch Officer.*
ENSIGN HARRY PHELPS, *Instructor in Navigation.*ENSIGN E. E. CAPEHART, *Watch Officer.*
CHAPLAIN E. K. RAWSON.
SURGEON G. E. H. HARMON.
ASSISTANT SURGEON C. H. T. LOWNDES.
ASSISTANT PAYMASTER J. S. CARPENTER.*August 14 to September 30.*COMMANDER C. D. SIGSBEE, *Commanding.*
LIEUTENANT-COMMANDER W. T. SWINBURNE,
*Executive Officer.*LIEUTENANT W. F. LOW, *Navigator.*
LIEUTENANT T. B. HOWARD, *Watch Officer.*
LIEUTENANT T. M. POTTS, *Watch Officer.*
LIEUTENANT J. M. ORCHARD, *Watch Officer.*
ENSIGN JOHN HOOD, *Watch Officer.*
ENSIGN HARRY PHELPS, *Instructor in Navigation.*ENSIGN E. E. CAPEHART, *Watch Officer.*
CHAPLAIN E. K. RAWSON.
SURGEON G. E. H. HARMON.
ASSISTANT SURGEON C. H. T. LOWNDES.
ASSISTANT PAYMASTER J. S. CARPENTER.

NAVAL CADETS.

First Class.

Bailey,	Everhart,	Ruhm,
Blankenship,	Gartley,	Schofield,
Bond,*	Holmes,	Signor,
Bostwick,	Latimer,	Snow,
Buck,	McVay,	Spear,
Catlin,	Moffett,	Sullivan,
Chase,	Moses,	Taylor,
Coleman,	Neville,	Treadwell,
Davis,	Price,	Vogelgesang,
Dayton,	Radford,	Williams,
Dismukes,	Ritter,	Ziegameier.
Edie,		

Third Class.

Allen,	Goodwin,	Payne.
Arison,	Hasbrouck,	Pollard,
Ball,	Hines,	Pollock,
Bannon,	Hoblitzelle,	Porter,
Beuret,	Huffington,	Pringle,
Blakely,	Hussey,	Rice,
Borden,	Jewell,	Ridgely,
Breckinridge,	Jones,	Rodney,
Campbell,	Kellogg, E. S.,*	Sawyer, F. L.,
Chadbourne,	Kilbourne,	Sawyer, J. G.,
Crank,	Larkin,	Sheehan,
Curlett,	Low,	Stirling,
Davis,	Macklin,	Stitt,
Davison,	Mallison,	Stopford,
Dawson,	Mather,	Swigart,
Day,	McCormick,	Symington,
Dennett,	McDonald,	Thompson,
Evans,	McNamee,	Traut,
Ferguson,	McReavy,†	Wedekind,
Gamble,	Moses,	Zillman.
Gibbs,		

Fourth Class.

Baehr,	Jackson,	Price,
Boyd,	Jenkins,	Randolph,
Chadwick,	Johnson, M. K.,*	Ryan, J. P. J.,
Cobb,	Jones, L. B.,	Smith, E. P.,
Cook,	Lane,	Stearns,
Crocker,	Logan,	Townsend,
Cruse,	Manion,	Valentine,
Douglas,	Neill,	Wayne,*
Elder,	Nutting,	Whitman,
Feild,	Olmsted,	Wilson,
French,	Perkins,	Winship,
Gise,	Powell,	Wishart.
Haines,		

Class of 1889.

Fermier.

NAVAL CADETS ON BOARD THE UNITED STATES SHIP SANTEE, RETAINED AT THE ACADEMY FOR MACHINE SHOP AND OTHER PRACTICAL INSTRUCTION.

Second Class.

Allen,	Bierer,	Camden,
Althouse,	Blamer,	Carter,
Anthon,	Blount,	Christy,
Beck,	Brotherton,	Emrich,
Belknap,	Caldwell,	Eaton.

* Not on second part of cruise.

† Not on first part of cruise.

Second Class—Continued.

Evans,	Magill,	Ryan, E. D.,
Flowers,	McGrann,	Saunders,
Ford,	McKelvy,	Senn,
Gillmor,	McLemore,	Shepard,
Gross,	Moale,	Smith, H. E.,
Hartung,	Myers,	Smith, H. G.,
Hough,	Ninde,	Smith, L. G.,
Irwin,	Nire,	Sparkman,
Kellogg, T. S.,	Pollock,	Stearns,
Kochersperger,	Preston,	Sypher,
Kuenzli,	Reed,	Theall,
Lane,	Reese,	Trickle,
Laws,	Richards,	Watt,
Leigh,	Robinson,	Wells,
Lyle,	Rowen,	Willard,
Macfarland,	Russell,	Zahm.

SUMMARY.

On board United States practice-ship <i>Constellation</i>	133
On board United States ship <i>Santee</i>	63
Total	196

SYNOPSIS OF THE CRUISE, 1889.

CONSTELLATION.

Cadets embarked June 8.
 Sailed from Annapolis June 14.
 Went to Norfolk navy-yard for repairs June 19.
 Cadets returned to Annapolis by steamer *Phlox* June 26.
 Cadets on leave until August 22.
 Cadets arrived at Norfolk by steamer *Phlox* and re-embarked August 23.
 Towed from Norfolk to Hampton Roads August 29.
 Cruised in Chesapeake Bay and vicinity until September 27.
 Came into harbor and cadets disembarked September 28.

RELATIVE STANDING OF NAVAL CADETS AT THE ANNUAL EXAMINATION, JUNE, 1889.

P denotes physically disqualified for the naval service.

† Found deficient, allowed a re-examination, passed, and continued with class.

‡ Found deficient, allowed a re-examination, again deficient, and recommended to be dropped.

§ Found deficient and recommended to be dropped.

a denotes absence from examination.

Class of naval cadets appointed 1884, performing required service afloat.

Order of merit.	Name.	State from which appointed.	Date of admission.
*1	Vansant, William Newton.....	Pennsylvania.....	Sept. 4, 1884
*2	Marble, Frank.....	New York.....	Sept. 4, 1884
3	Robertson, Ashley Herman.....	Illinois.....	Sept. 4, 1884
4	Brittain, Carlo Bonaparte.....	Kentucky.....	May 19, 1884
5	Morgan, Casey Bruce.....	Mississippi.....	Sept. 4, 1884
6	Croze, William Michael.....	Indiana.....	May 19, 1884
7	Miller, Marcus Lyon.....	Massachusetts.....	Sept. 4, 1884
8	Hayward, George North.....	New York.....	May 19, 1884
9	Koester, Oscar William.....	Pennsylvania.....	April 5, 1884
10	Beswick, Delworth Wilson.....	Michigan.....	May 20, 1884
11	Hubbard, John Flavel.....	New York.....	Sept. 5, 1884
12	Lejeune, John Archer.....	Louisiana.....	May 19, 1884
13	Robison, Samuel Shelburn.....	Pennsylvania.....	Sept. 4, 1884
14	Chandler, Lloyd Horwitz.....	New Hampshire.....	Sept. 4, 1884
15	Hartrath, Armin.....	Michigan.....	Sept. 4, 1884
16	Ingate, Clarence Louis Adrian.....	Alabama.....	May 20, 1884
17	Benham, Henry Kennedy.....	New York.....	May 19, 1884
18	West, Ernest Edward.....	Georgia.....	May 23, 1884
19	Hughes, Charles Frederic.....	Maine.....	Sept. 6, 1884
20	Norton, Albert Leland.....	Ohio.....	May 23, 1884
21	Stafford, Leroy Augustus.....	Louisiana.....	Sept. 15, 1884
22	Cole, Eli Kelley.....	New York.....	Sept. 4, 1883
23	Franklin, William Buell.....	Maryland.....	May 20, 1884
24	Reid, James Henry.....	Virginia.....	Sept. 4, 1884
25	Stickney, Herman Osman.....	Kentucky.....	Sept. 4, 1884
26	Beach, Edward Latimer.....	Minnesota.....	May 20, 1884
27	Bassett, Frederick Brewster, jr.....	New York.....	May 19, 1884
28	Gates, Herbert Grenville.....	Michigan.....	Sept. 4, 1884
29	Wiley, Henry Ariosto.....	Texas.....	May 17, 1883
30	Kane, Theodore Porter.....	New York.....	May 19, 1884

Class appointed in 1885, 35 members,

Order of general merit.	Name.	State.	Date of admission.
*1	Hobson, Richmond Pearson	Alabama	May 21, 1885
*2	Rock, George Henry	Michigan	May 20, 1885
*3	Hoff, Arthur Bainbridge	At large	Sept. 28, 1885
4	Twining, Nathan Crook	Wisconsin	Sept. 4, 1885
5	Hutchison, Benjamin Franklin	Missouri	Sept. 5, 1885
6	Pratt, William Veazie	Maine	Sept. 9, 1885
7	Kittelle, Sumner Ely	New York	May 19, 1885
8	Marvell, George Ralph	Massachusetts	Sept. 7, 1885
9	Nulton, Louis McCoy	Virginia	Sept. 8, 1885
10	Lucas, Lewis Clark	Ohio	Sept. 9, 1885
11	Patton, John Bryson	South Carolina	May 21, 1885
12	Neumann, Bertram Stansbury	New Jersey	May 22, 1885
13	Long, Charles Grant	Massachusetts	Sept. 7, 1885
14	MacDougall, William Dugald	New York	May 19, 1885
15	Danforth, George Washington	Missouri	Sept. 7, 1885
16	Magruder, Thomas Pickett	Mississippi	Sept. 3, 1885
17	Lowndes, Edward Rutledge	Michigan	Sept. 29, 1885
18	de Steiguer, Louis Rudolph	Ohio	Mar. 17, 1885
19	Bradshaw, George Brown	Texas	Sept. 4, 1885
20	Phelps, William Woodward	Maryland	May 19, 1885
21	Kaiser, Louis Anthony	Illinois	May 20, 1885
22	Offley, Cleland Nelson	Indiana	Sept. 5, 1885
23	Cole, William Carey	Illinois	Sept. 5, 1885
24	Mitchell, George Grant	Indiana	Sept. 7, 1885
25	Fuller, Ben Hebard	Michigan	May 22, 1885
26	Brand, Charles Augustine	Connecticut	Sept. 8, 1885
27	Williams, Philip	Vermont	Sept. 4, 1885
28	Carney, Robert Ernest	Wisconsin	May 21, 1885
29	Terhune, Warren Jay	New Jersey	May 19, 1885
30	Dutton, Robert McMillan	California	Sept. 4, 1885
31	Harrison, William Kelley	Texas	May 23, 1885
32	Kirk, George William	Missouri	Sept. 7, 1885
33	Prochazka, Julius	Wisconsin	Sept. 7, 1885
b34	Anderson, Ernest Bentley	Kentucky	May 22, 1885
35	Fermier, George Lucien	Indiana	May 21, 1885

b Resigned.

performing required service afloat.

Age at date of admission.		Order of merit.											Sea service in practice-ships.			
Years.	Months.	Seamanship, ship-building, and naval architecture.	Seamanship, practice-cruise.	Ordnance and gunnery.	Astronomy, navigation, and surveying.	Navigation, practice-cruise.	Practical instruction in steam-engineering.	Least squares and strength of materials.	Physical measurements.	Physiology and hygiene.	Conduct.	Number of demerits.	Months.	Days.	Order of general merit.	
14	9	1	1	1	2	4	3	1	2	2	5	9	8	0	1	1
16	6	2	3	2	1	3	1	2	1	7	3	7	8	0	0	2
15	9	3	2	4	4	2	31	3	3	3	2	6	3	28	3	3
16	8	4	9	3	6	6	5	5	6	5	12	26	5	7	4	4
17	7	9	10	7	3	4	3	4	4	4	7	10	5	7	5	5
16	6	7	7	5	7	1	15	10	7	6	21	39	5	7	6	6
17	11	6	4	14	13	13	5	21	5	1	1	1	8	0	7	7
16	0	14	11	15	9	8	15	10	19	12	4	8	5	7	8	8
16	1	16	17	12	16	10	5	5	11	27	10	19	5	7	9	9
17	10	4	16	6	12	20	5	17	21	12	11	20	5	7	10	10
17	11	17	12	11	10	13	19	22	33	33	17	29	8	0	11	11
17	7	12	8	18	29	12	19	32	22	17	7	10	8	0	12	12
15	9	27	23	21	18	16	13	14	9	22	14	28	5	7	13	13
16	11	8	21	24	31	29	5	19	23	8	24	45	8	0	14	14
17	7	19	22	26	26	34	12	28	14	25	17	29	5	7	15	15
17	10	13	18	8	5	23	35	16	13	23	25	46	5	7	16	16
17	8	22	20	19	19	27	19	9	11	30	31	63	5	7	17	17
18	0	26	29	21	15	15	22	8	14	23	19	33	8	0	18	18
15	4	19	33	9	14	31	22	12	17	32	33	95	5	7	19	19
15	6	10	19	12	11	20	25	18	24	15	23	44	8	0	20	20
15	1	30	31	17	23	19	32	15	34	20	35	98	8	0	21	21
16	3	25	30	28	22	33	5	26	32	29	14	28	5	7	22	22
17	1	23	12	29	28	23	25	20	8	9	30	60	5	7	23	23
16	0	27	24	16	17	11	15	27	10	25	5	9	5	7	24	24
15	3	19	32	9	8	7	25	7	16	18	32	85	7	7	25	25
17	4	18	15	21	21	9	25	13	18	10	26	54	5	7	26	26
15	7	15	35	19	24	25	13	24	31	21	29	59	5	7	27	27
16	5	10	6	25	20	30	15	35	20	16	22	41	7	9	28	28
16	1	29	28	29	30	35	25	24	27	12	34	96	8	0	29	29
15	10	31	25	27	35	28	32	31	29	11	27	55	5	7	30	30
14	10	33	27	31	27	26	25	23	26	27	20	34	8	0	31	31
17	1	35	25	32	33	32	32	30	27	34	28	57	3	22	32	32
16	10	32	14	34	25	18	5	28	30	31	9	16	5	7	33	33
16	8	33	34	34	31	22	22	33	35	18	14	28	8	0	34	34
17	2	23	5	33	34	16	2	34	24	35	12	26	7	7	35	35

Order of annual merit.	Name.	State.	Date of admission.
20	Bailey, Claude	Arkansas	Sept. 8, 1886
14	Blankenship, John Millington	Virginia	May 20, 1886
17	Bond, Charles Otis	Iowa	Sept. 8, 1886
28	Bostwick, Lucius Allyn	Massachusetts	Sept. 7, 1886
18	Buck, William Henry	Mississippi	May 22, 1886
19	Catlin, Albertus Wright	Minnesota	May 24, 1886
6	Chase, Jehu Valentine	Louisiana	Sept. 28, 1886
3	Coleman, Noah Tunncliff	New York	May 21, 1886
8	Davis, Cleland	Kentucky	May 22, 1886
29	Dayton, John Havens	At large	Sept. 13, 1886
e 31	Dismukes, Doctor Eugene	Mississippi	May 21, 1886
†	Edie, John Rufus	At large	May 19, 1886
26	Everhart, Lay Hampton	Alabama	May 20, 1886
7	Gartley, Alonzo	Iowa	May 23, 1886
e 5	Holmes, Urban Tigner	Arkansas	Sept. 13, 1886
27	Latimer, Julius Lane	West Virginia	Sept. 30, 1886
§	McDonald, Erwin Huntington	New York	Sept. 7, 1886
†	McVay, Charles Butler	Colorado	May 19, 1886
30	Moffett, William Adger	South Carolina	Sept. 6, 1886
15	Moses, Lawrence Henry	New York	Sept. 29, 1886
25	Neville, Wendell Cushing	Virginia	Sept. 13, 1886
e 12	Price, Claude Bernard	Mississippi	June 2, 1886
21	Radford, Cyrus Lugg	Kentucky	May 25, 1886
†	Rising, Franklin Sydney	Nevada	May 20, 1886
22	Ritter, Henry Snyder	Pennsylvania	May 25, 1886
* 1	Ruhm, Thomas Francis	Tennessee	May 20, 1886
4	Schofield, Frank Herman	New York	May 21, 1886
10	Signor, Matt. Howland	Nebraska	May 21, 1886
24	Snow, William Alanson	Massachusetts	Sept. 4, 1886
2	Spear, Lawrence	Ohio	May 19, 1886
13	Sullivan, Franklin Buchanan	At large	May 22, 1886
11	Taylor, Montgomery Meigs	do	May 21, 1886
23	Treadwell, Thomas Conrad	Massachusetts	May 21, 1886
†	Vogelgesang, Charles Theodore	California	Sept. 6, 1886
16	Williams, George Washington	South Carolina	Sept. 28, 1886
9	Ziegemeier, Henry Joseph	Ohio	May 21, 1886
a	Eaton, Frederick Lloyd, jr	Michigan	Sept. 6, 1886
a	Kochersperger, Frank Henry	Pennsylvania	May 20, 1886
a	Ryan, Eugene Dewey	New York	Sept. 4, 1886
a	Saunders, William Turner	At large	May 21, 1886

e Selected for engineer division.

a Absent from examination; retained in second class.

35 members.

Age at date of admission.		Order of merit.								Number of demerits.	Sea-service in practice-ships.		Order of annual merit.
Years.	Months.	Astronomy.	Steam machinery, marine engines, and boilers.	Practical work in steam engineering.	Mechanics and applied mathematics.	Physics.	Modern languages.	Mechanical drawing.	Conduct.		Months.	Days.	
15	10	27	20	18	14	29	20	30	17	62	4	12	20
17	9	22	13	12	28	22	24	2	6	29	6	29	14
15	9	17	24	7	18	16	27	21	15	58	3	4	17
16	6	23	12	22	32	20	32	19	34	132	4	12	28
17	7	21	26	12	28	14	16	27	11	35	6	29	18
17	5	10	28	2	15	18	27	24	20	72	6	29	19
17	8	5	6	6	7	5	12	12	23	74	4	12	6
16	2	2	2	18	6	4	13	5	27	93	6	29	3
16	6	15	10	15	8	7	10	3	25	82	6	29	8
17	11	11	24	27	20	23	26	34	34	132	4	12	29
16	7	23	32	23	24	26	34	32	22	73	6	29	e31
15	7	36	36	24	25	36	9	15	24	75	4	14	†
16	5	26	15	29	28	30	36	8	16	61	6	29	26
16	7	13	5	9	3	13	33	1	29	102	6	29	7
17	4	8	7	7	5	8	18	7	20	72	4	12	e5
17	11	18	22	24	22	25	24	35	18	68	4	12	27
16	10	35	14	24	35	24	16	29	33	128	2	15	§
17	7	32	31	15	19	33	11	19	2	15	3	29	†
16	10	33	34	2	33	35	31	13	3	24	4	12	30
16	2	15	17	36	9	10	1	36	32	127	4	12	15
16	11	31	27	29	31	28	19	18	7	30	4	12	25
17	7	20	8	31	25	18	15	25	10	34	6	29	e12
17	11	29	19	18	21	26	35	10	7	30	6	29	21
16	11	29	32	17	34	30	22	10	26	87	5	21	†
16	3	28	28	28	22	30	27	23	1	0	6	29	22
16	6	4	1	14	1	1	2	14	13	50	6	29	*1
17	4	1	2	2	11	3	4	8	12	36	6	29	4
15	5	6	20	35	4	6	6	28	36	190	6	29	10
16	7	34	35	9	15	33	22	5	5	27	4	12	24
15	6	2	4	18	2	2	2	16	13	50	6	29	2
14	10	12	10	33	10	11	27	17	28	96	5	29	13
16	7	19	9	2	15	15	7	4	30	109	6	29	11
16	11	13	23	34	25	17	21	33	18	68	6	29	23
17	7	25	30	1	36	21	5	25	9	31	4	12	†
17	1	9	16	32	12	12	14	31	31	114	4	12	16
17	1	7	18	9	12	9	8	22	4	26	6	12	9
16	5	a	a	a	a	a	a	a	a	46	2	15	a
16	3	a	a	a	a	a	a	a	a	3	5	2	a
16	6	a	a	a	a	a	a	a	a	38	2	15	a
16	1	a	a	a	a	a	a	a	a	90	5	2	a

Order of annual merit.	Name.	State.	Date of admission.
46	Allen, David Van Horn.....	Tennessee	Sept. 6, 1887
33	Althouse, Adelbert	Illinois	May 21, 1887
31	Anthon, Archibald.....	New York	June 9, 1887
53	Beck, William Walker.....	Maryland.....	Sept. 6, 1887
*5	Belknap, Reginald Rowan.....	Arkansas	Sept. 5, 1887
25	Bierer, Bion Barnett	Kansas	Sept. 24, 1887
*8	Blamer, De Witt	Iowa	May 19, 1887
30	Blount, Irving	Indiana	Sept. 6, 1887
29	Brotherton, William Daniel	Wisconsin	Sept. 6, 1887
34	Caldwell, Harry Handly	Illinois.....	Sept. 7, 1887
†	Camden, Bernard Holt.....	West Virginia	Aug. 27, 1887
32	Carter, James Francis	Pennsylvania.....	Mar. 24, 1887
12	Christy, Harley Hannibal	Ohio	May 24, 1887
23	Emrich, Charles Rulf	Illinois.....	May 19, 1887
22	Evans, Waldo.....	Kansas	Sept. 7, 1887
26	Flowers, Robert Lee.....	North Carolina	Sept. 7, 1887
38	Ford, William Howland	Iowa.....	Sept. 7, 1887
*2	Gillmor, Horatio Gonzalo	Wisconsin	Sept. 5, 1887
51	Gross, Louis Herman	Illinois	May 19, 1887
20	Hartung, Renwick John.....	Iowa.....	Sept. 6, 1887
14	Hough, Henry Hughes.....	Massachusetts.....	Sept. 6, 1887
21	Irwin, Noble Edward	Ohio	Sept. 29, 1887
†	Kellogg, Thomas Steele	At large	May 21, 1887
11	Kuenzli, Henry Charles	Wisconsin	Sept. 6, 1887
36	Lane, Rufus Herman	Ohio	June 2, 1887
45	Laws, George William.....	Iowa.....	May 21, 1887
27	Leigh, Richard Henry	Mississippi	Sept. 6, 1887
48	Lyle, Charles William.....	Virginia.....	Sept. 5, 1887
49	Macfarland, Horace Greeley.....	New York.....	Sept. 6, 1887
†	Magill, Louis John.....	Pennsylvania.....	June 17, 1887
24	McGrann, William Hugh.....	Tennessee	May 20, 1887
39	McKelvy, William Nepler.....	Pennsylvania.....	May 20, 1887
15	McLemore, Albert Sidney.....	Tennessee	May 23, 1887
18	Moale, John Gray Foster	California.....	Sept. 6, 1887
44	Myers, John Twiggs.....	Georgia.....	Sept. 27, 1887
*6	Ninde, Daniel Benjamin	Indiana	May 20, 1887
d	Nire, Kaga Kazu	Empire of Japan	May 21, 1887
*10	Pollock, Edwin Taylor	Ohio	May 20, 1887
19	Preston, Charles Francis	Maryland.....	Sept. 6, 1887
16	Reed, Milton Eugene.....	Iowa.....	Sept. 5, 1887
†	Reese, William James.....	Texas.....	Sept. 5, 1887

d Deficient; continued with class.

58 members.

Age at date of admission.		Order of merit.							Sea-service in practice-ships.		Order of annual merit.
Years.	Months.	Trigonometry, analytical geometry, and descriptive geometry.	Chemistry and physics.	English, history, and the Constitution.	French, Spanish, and German.	Mechanical drawing.	Conduct.	Number of demerits.	Months.	Days.	
17	3	40	43	41	28	58	51	150	2	20	46
18	0	33	44	50	42	21	16	35	5	5	33
16	10	45	32	43	11	12	53	155	5	0	31
17	7	51	55	60	59	45	56	170	2	6	53
16	3	8	6	6	3	7	20	39	2	20	*5
17	6	26	17	28	36	36	21	45	1	2	25
15	4	4	6	20	22	25	36	84	5	5	*8
17	6	29	36	38	29	47	8	25	2	20	30
15	11	29	44	30	34	29	32	77	2	20	29
14	7	46	28	30	21	42	31	76	2	20	34
18	0	31	59	52	55	50	54	162	1	2	†
18	0	42	33	16	34	47	26	51	5	5	32
16	8	8	19	12	22	17	3	20	5	5	12
16	8	18	12	24	26	20	49	134	4	21	23
17	10	17	15	37	31	25	24	48	2	20	22
16	10	21	29	33	27	44	25	50	2	10	26
15	7	54	51	48	25	31	17	36	2	20	38
17	8	1	2	1	7	9	13	31	2	20	*2
16	2	40	39	51	43	56	59	175	4	21	51
17	0	15	20	22	33	24	14	32	2	20	20
16	8	28	38	18	1	6	5	23	2	20	14
18	0	11	26	42	44	14	34	81	2	6	21
15	9	58	55	55	49	51	55	164	5	5	†
16	4	12	22	5	5	11	29	70	2	20	11
16	7	38	14	35	40	39	42	101	5	5	36
17	3	42	41	43	38	43	57	172	5	5	45
17	1	19	35	40	46	34	7	24	1	2	27
17	1	50	41	46	58	55	30	73	1	6	48
14	8	37	31	36	41	59	60	209	2	6	49
16	4	51	57	29	20	33	43	103	5	5	†
17	7	24	33	11	18	32	33	79	2	20	24
17	11	48	50	30	32	41	21	45	5	5	39
18	0	20	9	9	2	27	44	108	2	15	15
16	8	31	27	24	11	2	19	38	2	15	18
16	8	54	51	33	46	38	47	131	2	20	44
16	10	7	17	6	8	3	28	62	5	5	*6
17	8	25	60	58	60	22	41	99	5	5	d
16	7	10	11	8	6	27	11	28	2	6	*10
16	4	14	23	39	24	15	10	26	2	17	19
17	10	23	15	13	19	4	2	13	2	20	16
17	6	57	58	53	53	57	61	224	2	20	†

Order of annual merit.	Name.	State.	Date of admission.
43	Richards, George	Ohio	Sept. 12, 1887
52	Robinson, Roby	Alabama	May 21, 1887
<i>a</i>	Robison, John Keeler	Michigan	May 20, 1887
*7	Rowen, John Howard	Pennsylvania	Sept. 27, 1887
b50	Russell, Edward Gaston	Georgia	Sept. 7, 1887
41	Senn, Thomas Jones	South Carolina	May 19, 1887
35	Shepard, George Hugh	Wisconsin	Sept. 27, 1887
40	Smith, Harry Eaton	Ohio	May 20, 1887
*4	Smith, Henry Gerrish	Ohio	Sept. 5, 1887
13	Smith, Lucien Greathouse	Illinois	June 3, 1887
†	Sparkman, Sullivan Thomas	South Carolina	Sept. 24, 1887
*9	Stearns, Clark Daniel	Michigan	Sept. 5, 1887
28	Sypher, Jay Hale	Arizona	Sept. 5, 1887
47	Theall, Elisha	New York	May 28, 1887
42	Trickle, Edward	Illinois	May 20, 1887
*3	Watt, Richard Morgan	Pennsylvania	Sept. 22, 1887
†	Wells, Chester	Pennsylvania	Sept. 10, 1887
17	Willard, Arthur Lee	Missouri	Sept. 7, 1887
37	Williams, Dion	Ohio	July 16, 1887
*1	Zahm, Frank Baker	Pennsylvania	Sept. 5, 1887

a Absent second term, sick; continued with class, subject to examination.

b Resigned.

58 members—Continued.

Age at date of admission.		Order of merit.						Number of demerits.	Sea-service in practice-ships.		Order of annual merit.
Years.	Months.	Trigonometry, analytical geometry, and descriptive geometry.	Chemistry and physics.	English, history, and the Constitution.	French, Spanish, and German.	Mechanical drawing.	Conduct.		Months.	Days.	
15	7	34	24	57	51	18	52	154	1	2	43
16	0	38	47	59	56	53	46	129	5	5	52
16	6	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	<i>a</i>	27	60	5	5	<i>a</i>
16	8	3	8	45	45	1	39	89	2	20	*7
17	9	46	44	47	50	54	48	133	2	20	b50
15	5	21	49	27	48	59	38	88	5	5	41
15	9	44	21	17	16	47	57	172	1	2	35
17	5	34	39	53	56	9	35	82	5	5	40
17	5	6	4	15	9	18	8	25	2	20	*4
17	6	16	13	4	15	22	12	29	5	5	13
17	9	59	36	22	17	40	23	46	2	20	‡
17	8	13	9	9	9	8	5	23	2	20	*9
16	6	36	24	20	30	37	37	86	2	20	28
14	5	54	53	56	50	34	40	94	5	5	47
17	7	48	54	48	38	30	18	37	5	5	42
15	3	5	5	13	14	12	1	12	2	20	*3
16	11	60	47	24	53	52	45	118	2	20	†
17	7	26	3	3	13	45	14	32	1	2	17
17	5	51	30	18	37	15	49	134	2	10	37
16	3	2	1	2	4	4	3	20	2	20	*1

Order of annual merit.	Name.	State.	Date of admission.
23	Allen, Charles.....	Ohio.....	Mar. 15, 1888
25	Arison, Edgar Emmett.....	Pennsylvania.....	May 18, 1888
50	Ball, Walter.....	New York.....	Sept. 6, 1888
56	Bannon, Philip Michael.....	Maryland.....	May 21, 1888
*1	Beuret, John Dougal.....	Ohio.....	Sept. 7, 1888
9	Blakely, John Russell Young.....	Pennsylvania.....	Sept. 29, 1888
26	Borden, Thomas Sheppard.....	Louisiana.....	Sept. 25, 1888
37	Breckinridge, Joseph Cabell.....	Kentucky.....	Sept. 5, 1888
11	Campbell, Joseph Randolph.....	Wyoming.....	Sept. 29, 1888
31	Chadbourne, Ralph Collins.....	Maine.....	May 21, 1888
15	Crank, Robert Kyle.....	Texas.....	Sept. 6, 1888
46	Curlett, John.....	Virginia.....	May 15, 1888
47	Davis, Austin Rockwell.....	Georgia.....	May 21, 1888
27	Davison, Gregory Caldwell.....	Missouri.....	May 22, 1888
*3	Dawson, William Charles.....	Missouri.....	Sept. 6, 1888
*7	Day, George Calvin.....	Vermont.....	May 19, 1888
51	Dennett, Stanley Pullen.....	Maine.....	May 19, 1888
17	Evans, Holden A.....	Florida.....	Sept. 5, 1888
*4	Ferguson, Homer Lenoir.....	North Carolina.....	May 21, 1888
12	Gamble, Aaron Lichtenberger.....	Indiana.....	Sept. 5, 1888
28	Gibbs, Washington Dorsey.....	Mississippi.....	May 18, 1888
44	Goodwin, Leonard.....	Pennsylvania.....	May 18, 1888
49	Hasbrouck, Raymond De Lancy.....	Idaho Territory.....	Sept. 25, 1888
22	Hines, John Fore.....	Kentucky.....	May 21, 1888
38	Hoblitzelle, William Edward.....	Missouri.....	Sept. 6, 1888
34	Huffington, Howard Williams.....	Pennsylvania.....	May 19, 1888
18	Hussey, Charles Lincoln.....	New Hampshire.....	May 21, 1888
*5	Jewell, Charles Theodore.....	At large.....	May 19, 1887
39	Jones, Beriah Ellwood.....	Pennsylvania, at large.....	May 19, 1888
58	Kellogg, Edward Stanley.....	New York.....	Sept. 5, 1888
45	Kilbourne, Joseph Coolidge.....	Ohio.....	May 21, 1888
35	Larkin, Rozier Bonaparte.....	Virginia.....	May 21, 1888
§	Logan, William Vance.....	Indiana.....	Sept. 6, 1888
19	Low, Theodore Henry.....	Connecticut.....	May 18, 1888
55	Macklin, Charles Fearn.....	New York.....	Sept. 25, 1888
51	Mallison, George.....	North Carolina.....	May 21, 1888
48	Mather, George Herbert.....	New Jersey.....	May 22, 1888
32	McCormick, Benjamin Bernard.....	New York.....	May 19, 1888
8	McDonald, Joseph Ezekiel.....	Illinois.....	Sept. 7, 1888
*6	McNamee, Luke.....	Kansas.....	Sept. 6, 1888
33	McReavy, Herbert Ellsworth.....	Washington Territory.....	May 18, 1888
†	Moses, Stanford Elwood.....	Georgia.....	Sept. 6, 1888
§	Nevitt, Rollin Roy.....	Missouri.....	Sept. 7, 1888
41	Payne, Fred Rounsiville.....	New York.....	May 21, 1888
†	Pollard, Charles Teed, jr.....	Texas.....	Sept. 25, 1888
16	Pollock, Emmett Riddle.....	Illinois.....	May 18, 1888
53	Porter, John Singleton.....	Tennessee.....	Sept. 25, 1888

d Dismissed.

61 members.

Age at date of admission.		Order of merit.				Number of demerits.	Sea-service in practice-ships.		Order of annual merit.
Years.	Months.	English and history.	Algebra and geometry.	French, Spanish, and German.	Conduct.		Months.	Days.	
17	11	34	19	19	40	68	4	17	23
15	2	36	39	7	58	157	4	17	25
16	1	52	31	53	48	95	1	27	50
16	2	56	53	57	22	42	4	17	56
17	7	2	1	3	32	57	1	27	*1
16	2	24	6	23	41	69	1	27	9
16	6	21	51	13	52	114	1	27	26
16	6	11	41	32	64	241	1	27	37
16	6	10	14	21	44	74	1	27	11
17	2	9	56	43	7	20	4	17	31
16	8	27	26	6	46	83	1	27	15
18	0	43	56	37	10	24	2	20	46
16	9	63	18	32	60	165	4	17	47
17	0	27	11	60	35	61	4	17	27
17	5	1	12	2	42	70	1	27	*3
16	6	6	2	28	33	58	4	17	*7
15	11	49	39	56	36	62	4	17	51
16	9	12	13	44	11	25	1	27	17
15	2	3	7	4	20	39	4	17	*4
15	10	7	21	22	45	82	1	27	12
16	3	57	8	37	49	99	4	17	28
16	11	53	53	20	46	83	4	17	44
17	2	43	37	58	43	71	1	27	49
17	7	33	14	41	1	8	4	17	22
17	1	38	42	42	4	14	1	27	38
15	9	18	28	54	26	49	4	17	34
17	3	13	16	34	27	50	4	17	18
15	2	8	3	12	51	106	4	12	*5
17	4	42	36	34	22	42	1	27	39
17	11	61	43	62	6	18	0	19	58
16	10	41	44	30	56	149	4	17	45
16	9	31	46	9	63	221	4	17	35
16	7	64	64	64	31	55	0	0	§
17	8	15	10	37	54	117	4	17	19
17	5	62	37	49	29	51	1	27	55
17	4	38	46	49	53	116	4	17	51
15	1	47	48	49	14	28	4	17	48
15	3	16	55	30	19	38	4	17	32
16	6	22	4	29	15	29	1	27	8
17	5	5	9	15	18	37	1	27	*6
18	7	40	51	16	38	66	3	28	33
16	0	60	63	59	16	30	1	27	†
17	6	54	60	63	27	50	0	0	§
16	9	24	27	34	62	217	4	17	41
16	0	47	61	26	39	67	1	27	†
15	5	18	33	5	50	102	4	17	16
15	8	45	29	54	57	152	1	27	53

Order of annual merit.	Name.	State.	Date of admission.
29	Pringle, Joel Roberts Poinsett.....	Illinois.....	Sept. 6, 1888
13	Rice, Arthur.....	Indiana.....	Sept. 7, 1888
42	Ridgely, Randolph.....	Georgia.....	Sept. 6, 1888
†	Rodney, Warren.....	Texas.....	Sept. 6, 1888
43	Russell, John Henry, jr.....	At large.....	May 18, 1888
10	Sawyer, Frederick Lewis.....	Illinois.....	Sept. 6, 1888
57	Sawyer, Josiah Grigg.....	Illinois.....	May 19, 1888
30	Sheehan, James.....	New York.....	May 21, 1888
40	Stirling, Yates, jr.....	Massachusetts.....	Sept. 6, 1888
20	Stitt, Thomas Lutz.....	Indiana.....	Sept. 5, 1888
24	Stopford, Frederick William.....	Massachusetts.....	May 19, 1888
54	Swigart, Raymond Belt.....	Iowa.....	Sept. 5, 1888
21	Symington, Powers.....	West Virginia.....	Sept. 7, 1888
14	Thompson, Leon Seymour.....	Ohio.....	May 21, 1888
*2	Traut Frederick Augustus.....	Connecticut.....	May 19, 1888
36	Wedekind, George.....	New York.....	Sept. 5, 1888
†	Zillman, Christian Charles Herman.....	Missouri.....	Sept. 27, 1888

62 members—Continued.

Age at date of admission.		Order of merit.				Number of demerits.	Sea-service in practice-ships.		Order of annual merit.
Years.	Months.	English and history.	Algebra and geometry.	French, Spanish, and German.	Conduct.		Months.	Days.	
15	7	45	48	8	34	60	1	27	29
17	3	29	17	16	7	20	1	27	13
16	11	26	31	48	55	122	1	27	42
17	1	32	61	37	30	52	1	27	†
15	6	51	30	49	11	25	2	20	43
17	4	4	25	24	4	14	1	27	10
16	11	55	56	61	3	13	4	17	57
15	8	57	21	18	25	46	4	17	30
16	4	49	19	26	59	163	0	38	40
15	1	13	33	25	11	25	1	27	20
15	7	34	24	10	61	212	4	17	24
17	11	57	50	47	9	23	1	27	54
15	11	20	45	13	37	65	1	27	21
14	0	36	21	11	2	10	4	17	14
16	11	17	5	1	22	42	4	17	*2
16	6	29	33	45	17	36	1	27	36
17	8	23	59	45	20	39	1	27	†

Fourth Class—90 members.

Name.	State.	Date of admission.	Age at date of admission.		Sea-service in practice-ships.	
			Years.	Months.	Months.	Days.
Andrews, Claude Norton	Iowa	Sept. 5, 1889	15	6		
Asbury, Louis George, jr	Louisiana	Sept. 7, 1889	19	10		
Baehr, William Alfred	Wisconsin	May 20, 1889	15	8	1	27
Bagley, Worth	North Carolina	Sept. 5, 1889	15	5		
Baird, Lewis Conway	Indiana	Sept. 6, 1889	18	2		
Bennett, Ernest Linwood	Massachusetts	Sept. 24, 1889	17	10		
Berry, David Mark	California	Sept. 6, 1889	17	7		
Berryman, John Russell	Ohio	Oct. 3, 1889	17	3		
Bisset, Eugene Leo	Kentucky	Oct. 2, 1889	18	1		
Boyd, Romaine Tarver <i>b</i>	Alabama	May 18, 1889	15	6	1	27
Brady, John Richard	Pennsylvania	Sept. 6, 1889	16	11		
Campbell, Edward Hale	Indiana	Sept. 6, 1889	16	11		
Carver, Marvin	Minnesota	Sept. 27, 1889	18	5		
Chadwick, Frank Laird	Minnesota	May 18, 1889	17	2	1	27
Clark, Frank Hodges, jr	Rhode Island	Sept. 5, 1889	17	9		
Cobb, John Addison, jr	Georgia	May 22, 1889	16	3	1	27
Coleman, James Samuel	Alabama	Sept. 5, 1889	16	3		
Cook, Allen Merriam	Kansas	May 22, 1889	18	8	1	27
Crocker, John Archdell	Pennsylvania	May 22, 1889	17	3	1	27
Crosley, Walter Selwyn	Connecticut	Sept. 9, 1889	17	10		
Cruse, Andrew Jackson, jr	Pennsylvania	May 18, 1889	16	4	1	27
Dailey, Harry Logan	Texas	Sept. 7, 1889	18	4		
Doddridge, John Sehon	West Virginia	Sept. 7, 1889	17	1		
Douglas, Richard Spencer	Georgia	June 3, 1889	17	10	1	27
Eberle, Joseph Duvall	Arkansas	May 28, 1889	19	1		
Elder, Edwin Avery	Massachusetts	May 21, 1889	16	9	1	27
Fewel, Christopher Catron	Texas	Oct. 2, 1889	15	11		
Feild, Hubbard Moylan	Virginia	May 20, 1889	18	0	1	27
Fitch, Claude Eames	Illinois	Sept. 7, 1889	17	0		
French, Robert Abercrombie	Florida	May 23, 1889	16	9	1	27
Gise, William Kern	Illinois	June 14, 1889	18	0	1	27
Greer, George Tate	Virginia	Oct. 4, 1889	17	9		
Groff, Joseph Coblenz	Missouri	Oct. 3, 1889	19	4		
Groesbeck, William Gerard	Ohio	Sept. 5, 1889	15	0		
Hains, Peter Connor, jr	District of Columbia	May 18, 1889	17	4	1	27
Holsinger, Gerald Long	Kansas	Oct. 3, 1889	19	3		
Hood, Gordon	Alabama	Oct. 2, 1889	18	0		
Hooker, James Clifton	Tennessee	Sept. 7, 1889	18	1		
Jackson, Orton Porter	Pennsylvania	May 18, 1889	15	9	1	27
James, Leland Frierson	South Carolina	Sept. 9, 1889	17	0		
Jenkins, Thomas Leoline	North Carolina	May 31, 1889	19	11	1	27
Johnson, John Randolph	North Carolina	Oct. 4, 1889	19	11		
Johnson, Moulton Kinsinger	Ohio	June 10, 1889	19	6		
Jones, Lewis Benson	New York	May 21, 1889	16	6	1	27
Kellogg, Thomas Steele	At Large	Oct. 19, 1889	18	2		
Lane, Charles Arthur	Missouri	May 21, 1889	18	3	1	27
Lang, Charles Jonas	Pennsylvania	Sept. 6, 1889	19	10		
Latta, Samuel Granger	Tennessee	Sept. 9, 1889	18	1		
Logan, William Vance	Indiana	June 26, 1889	17	5	1	27
Magill, Louis John	Pennsylvania	Nov. 11, 1889	18	9		
Manion, Walter James	Louisiana	May 21, 1889	16	5	1	27

b Resigned.

Fourth Class—90 members—Continued.

Name.	State.	Date of admission.	Age at date of admission.		Sea-service in practice-ships.	
			Years.	Months.	Months.	Days.
KeKethan, Alfred Augustus . . .	North Carolina . . .	Sept. 5, 1889	17	10		
Montgomery, William Slack . . .	Kentucky	Sept. 5, 1889	16	11		
Morris, John Ramsey	Missouri	Sept. 7, 1889	19	8		
Neill, Charles Fergus	Texas	May 21, 1889	16	2	1	27
Nutting, Daniel Chaplin, jr. . . .	Kansas	May 21, 1889	19	9	1	27
Olmsted, Percy Napier	Oregon	May 21, 1889	17	10	1	27
Parker, Thomas Drayton	South Carolina . . .	Oct. 3, 1889	18	2		
Pearson, Henry Allen	Utah	Sept. 6, 1889	19	8		
Perkins, Frederick King	California	May 23, 1889	16	6	1	27
Perry, Joseph Albert	Illinois	Sept. 6, 1889	15	10		
Pengnet, Maurice Berthold	Missouri	Sept. 7, 1889	18	7		
Potter, James Boyd	New Jersey	Sept. 5, 1889	16	8		
Powell, William Glasgow	New Jersey	May 18, 1889	17	8		
Powelson, Wilfrid Van Nest	New York	Sept. 5, 1889	17	0		
Pratt, Alfred Allen	Illinois	Sept. 7, 1889	16	2		
Price, Henry Bertrand	Iowa	May 20, 1889	19	11	1	27
Proctor, Andre Morton	Kentucky	Sept. 6, 1889	16	2		
Randolph, William Browne	New York	May 20, 1889	17	9	1	27
Read, Frank De Witt	Ohio	Sept. 6, 1889	19	2		
Richmond, Edgar	California	Sept. 7, 1889	17	9		
Ryan, George Whitehouse	Massachusetts	Sept. 6, 1889	18	3		
Ryan, John Paul Joseph	New York	May 22, 1889	19	9		
Scott, Guy Terrell	Nebraska	Sept. 7, 1889	16	8		
Shaw, Graham	Pennsylvania	Sept. 7, 1889	15	8		
Smith, Edward Price	Michigan	May 29, 1889	17	4		
Stearns, Edward Cheever	Ohio	May 21, 1889	17	8	1	27
Sticht, John Low	New York	Sept. 7, 1889	16	5		
Sturdevant, Richard	Pennsylvania	Sept. 6, 1889	17	7		
Townsend, Arthur Critchlow	Pennsylvania	May 22, 1889	17	0	1	27
Trench, Martin Edward	Minnesota	Oct. 3, 1889	19	10		
Upham, Frank Brooks	Montana	Sept. 6, 1889	17	0		
Vail, Thomas Holdup Stevens . . .	New Mexico	May 25, 1889	18	6		
Valentine, William Stanley	New York	May 20, 1889	16	11	1	27
Ward, Henry Heber	New Jersey	Sept. 7, 1889	18	3		
Wayne, Mullin Harris b.	Virginia	June 11, 1889	15	9		
Wells, Chester	Pennsylvania	Nov. 15, 1889	19	1		
Whitman, Walter Bloomfield	Texas	May 20, 1889	18	6	1	27
Whittemore, Allan Pendleton	Missouri	Oct. 3, 1889	16	6		
Wilson, Thomas Sheldon	Illinois	May 20, 1889	18	1	1	27
Winship, Emory	Georgia	May 23, 1889	17	3	1	27
Wishart William Clifton	North Carolina	May 30, 1889	17	10	1	27

b Resigned.

SUMMARY OF CADETS AT THE U. S. NAVAL ACADEMY.

November 23, 1889.

	Members.
First class	35
Second class	58
Third class	61
Fourth class	90
Total	244

APPOINTMENTS, DISCHARGES, RESIGNATIONS, DISMISSALS.

September 1, 1888, to November 23, 1889.

APPOINTED ENSIGNS.

Naval Cadet George Frederick Hawk	Class of 1886
Naval Cadet Robert Stocker	Class of 1887
Naval Cadet Elliot Snow	Class of 1887
Naval Cadet Benton Clark Decker	Class of 1887
Naval Cadet Mark Lambert Bristol	Class of 1887
Naval Cadet Benjamin Warner Wells, jr.....	Class of 1887
Naval Cadet Walter Safford Burke.....	Class of 1887
Naval Cadet Newton Alexander McCully, jr.....	Class of 1887
Naval Cadet Levi Calvin Bertolette.....	Class of 1887
Naval Cadet William Snelling Cloke.....	Class of 1887
Naval Cadet George Wood Logan.....	Class of 1887
Naval Cadet Edward Moale, jr.....	Class of 1887
Naval Cadet Henry Francis Bryan	Class of 1887
Naval Cadet Samuel Ray Hurlbut.....	Class of 1887
Naval Cadet Andrew Theodore Long	Class of 1887
Naval Cadet Edward Hovey Durell.....	Class of 1887
Naval Cadet Archibald Henderson Scales.....	Class of 1887
Naval Cadet Ford Hopkins Brown	Class of 1887
Naval Cadet Creighton Churchill	Class of 1887
Naval Cadet Clarence Morton Stone	Class of 1887
Naval Cadet Thomas Washington.....	Class of 1887
Naval Cadet Francis Boughter.....	Class of 1887
Naval Cadet Archibald Hilliard Davis.....	Class of 1887
Naval Cadet Guy Hamilton Burrage.....	Class of 1887
Naval Cadet Frank Mead Russell.....	Class of 1887

APPOINTED ASSISTANT ENGINEERS.

Naval Cadet Frank Warren Hibbs	Class of 1887
Naval Cadet Victor Blue.....	Class of 1887

APPOINTED SECOND LIEUTENANT U. S. MARINE CORPS.

Naval Cadet Herbert Lemuel Draper.....	Class of 1887
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HONORABLY DISCHARGED.

Naval Cadet Frederick Norton Kress.....	Class of 1886
Naval Cadet Ben Wade Stearns	Class of 1887
Naval Cadet William Graham McMillan.....	Class of 1887

HONORABLY DISCHARGED—continued.

Naval Cadet Henry Lincoln Peckham.....	Class of 1887
Naval Cadet Charles Ernest Johnston.....	Class of 1887
Naval Cadet Samuel Preston Edmonds.....	Class of 1887
Naval Cadet Henry Asa Allen.....	Class of 1887
Naval Cadet Michael Royston Pigott.....	Class of 1887
Naval Cadet Richard Harrison Jackson.....	Class of 1887
Naval Cadet Frederick Emil Swanstrom.....	Class of 1887
Naval Cadet Claude Stanley Cochran.....	Class of 1887
Naval Cadet Charles Edward Hudson.....	Class of 1887
Naval Cadet James Grey Ballinger.....	Class of 1887
Naval Cadet Colin Samuel Craig.....	Class of 1887
Naval Cadet Thomas Michael O'Halloran.....	Class of 1887
Naval Cadet William Branch Moseley.....	Class of 1887

RESIGNED.

Naval Cadet Curtis Dwight Wilbur, class of 1888.....	Sept. 1, 1888
Naval Cadet Samuel James Aiken, class of 1888.....	Sept. 1, 1888
Naval Cadet Louis Joseph Anderson, class of 1888.....	Sept. 1, 1888
Naval Cadet Stuart Warren Cramer, class of 1888.....	Sept. 1, 1888
Naval Cadet Moses Daniel Monroe, class of 1888.....	Sept. 1, 1888
Naval Cadet Louis le Sassier Young, class of 1887.....	Sept. 20, 1888
Naval Cadet Wiley Sims Embrey, third class.....	Oct. 9, 1888
Naval Cadet Walter Smith Norton, third class.....	Oct. 13, 1888
Naval Cadet George Fort Gibbs, third class.....	Oct. 17, 1888
Naval Cadet Robert Sayers, fourth class.....	Oct. 17, 1888
Naval Cadet James Jefferson Garth, fourth class.....	Dec. 17, 1888
Naval Cadet Frederick William Ballschmider, second class.....	Feb. 25, 1889
Naval Cadet John Paul Joseph Ryan, second class.....	Feb. 25, 1889
Naval Cadet Charles Follett Consaul, third class.....	Feb. 25, 1889
Naval Cadet Timothy Francis Maurin, third class.....	Mar. 1, 1889
Naval Cadet Peter Stuyvesant Pilot, third class.....	Mar. 1, 1889
Naval Cadet William Browne Randolph, fourth class.....	Mar. 30, 1889
Naval Cadet William Stanley Valentine.....	Apr. 29, 1889
Naval Cadet William Glasgow Powell, fourth class.....	May 6, 1889
Naval Cadet Thomas Holdup Stevens Vail, fourth class.....	May 13, 1889
Naval Cadet Percy Napier Olmsted, fourth class.....	May 14, 1889
Naval Cadet Graham Shaw, fourth class.....	May 14, 1889
Naval Cadet Thomas Leoline Jenkins, third class.....	May 15, 1889
Naval Cadet Lewis Conway Baird, fourth class.....	May 15, 1889
Naval Cadet Richard Spencer Douglas, fourth class.....	May 15, 1889
Naval Cadet William Lewis Murray, fourth class.....	May 15, 1889
Naval Cadet Charles Louis Kaufman, fourth class.....	May 16, 1889
Naval Cadet Guy Terrel Scott, fourth class.....	May 16, 1889
Naval Cadet George Peter Wager, fourth class.....	May 16, 1889
Naval Cadet Hugh Waldron, fourth class.....	May 16, 1889
Naval Cadet Albert Perrin Childs, fourth class.....	May 17, 1889
Naval Cadet Lucius Boltwood, fourth class.....	May 18, 1889
Naval Cadet James Samuel Coleman, fourth class.....	May 18, 1889
Naval Cadet Walter Portrum Bewley, fourth class.....	May 21, 1889
Naval Cadet William Wiley Sparks, fourth class.....	May 21, 1889
Naval Cadet James Clifton Hooker, fourth class.....	May 21, 1889
Naval Cadet Joseph Jennings, fourth class.....	May 21, 1889
Naval Cadet John Haynes Thompson, fourth class.....	May 21, 1889

Naval Cadet Frederick Augustus Churchill, fourth class	May 25, 1889
Naval Cadet Edwin Huntington McDonald, second class	June 24, 1889
Naval Cadet Rollin Roy Nevitt, fourth class	June 24, 1889
Naval Cadet William Vance Logan, fourth class	June 24, 1889
Naval Cadet Ernest Bentley Anderson, class of 1889	June 26, 1889
Naval Cadet Edward Gaston Russell, second class	Sept. 27, 1889
Naval Cadet Sullivan Thomas Sparkman, third class	Oct. 4, 1889
Naval Cadet Bernard Holt Camden, third class	Oct. 8, 1889
Naval Cadet Mullin Harris Wayne, fourth class	Oct. 8, 1889
Naval Cadet Louis John Magill, third class	Oct. 12, 1889
Naval Cadet Chester Wells, third class	Oct. 12, 1889
Naval Cadet Thomas Steele Kellogg, third class	Oct. 12, 1889
Naval Cadet William James Reese, third class	Oct. 14, 1889
Naval Cadet Romaine Tarver Boyd, fourth class	Nov. 23, 1889

DROPPED.

Naval Cadet Louis Labadie Driggs, second class	Jan. 22, 1889
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DISMISSED.

Naval Cadet Henry Lake Woodward, first class	Feb. 25, 1889
Naval Cadet Herbert Ellsworth McReavy, third class	Oct. 29, 1889

DIED.

Naval Cadet John Young Lang, fourth class	May 15, 1889
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MERIT-ROLLS FOR 1888-'89.

Merit-rolls, made out annually for each class, show the proficiency of the cadets in each branch of study. The numbers given in the table, page 70, showing the relative weight of the different branches, are used as co-efficients; the final mark in each branch (on a scale of 4) being multiplied by the number assigned to that branch. The sum of the products, after adding the multiple for conduct, is the final mark of the cadet for the year.

In the case of cadets who take an advanced course in any branch, the final mark in that branch is determined by adding to the final mark received in the required course one-fifth of the amount by which the final mark in the advanced course exceeds 2.50.

In the graduating merit-roll, the final standing for the course is determined by the sum of the yearly marks.

"Cadets who attain 85 per cent. of the multiple in any year shall be distinguished by a star affixed to their names on the merit-rolls." (Regulations U. S. Naval Academy, § 191.)

The diplomas of cadets whose final marks on the graduating merit-roll are not less than 85 per cent. of the maximum read "passed with distinction;" those whose final marks are between 74 per cent. and 85 per cent. of the maximum read "passed with credit;" and those whose final marks are between $62\frac{1}{2}$ per cent. and 74 per cent. of the maximum read "passed."

P denotes physically disqualified for the naval service.

† Found deficient, allowed a re-examination, passed, and continued with class.

‡ Found deficient, allowed a re-examination, again deficient, and recommended to be dropped.

§ Found deficient, and recommended to be dropped.

a denotes absence from examination.

Merit-roll of the graduating class of naval cadets at the conclusion of the six years' course, June, 1889.

Order of merit.	NAME.	Seamanship and naval tactics.	Ordnance and gunnery.	Navigation.	Steam-engineering.	Modern languages.	Cruise reports.	Aggregate for final examination.	Aggregate for four years.	Final aggregate.	ASSIGNMENT.
		56	44	44	44	28	24	240	760	1000	
1	Maxima										
2	Stocker, Robert.....	45.36	38.94	38.28	30.25	28.77	22.20	203.80	680.68	884.48	Ensign.
3	Hibbs, Frank Warren	48.02	39.38	36.96	40.48	24.43	22.98	212.25	667.18	879.43	Assistant engineer.
4	Snow, Elliot	46.06	40.04	40.04	29.26	24.71	22.62	202.73	653.54	856.27	Ensign.
5	Decker, Benton Clark	46.20	41.25	38.17	35.31	24.08	22.38	207.39	636.68	844.07	Ensign.
6	Bristol, Mark Lambert	47.46	36.08	33.44	34.21	21.63	19.56	192.38	634.12	826.50	Ensign.
7	Wells, Benjamin Warner, jr.....	41.72	39.82	37.40	31.35	24.78	22.44	197.51	618.28	815.79	Ensign.
8	Burke, Walter Safford.....	45.36	37.73	35.42	35.20	21.49	20.40	195.60	610.41	806.01	Ensign.
9	McCully, Newton Alexander, jr.....	39.62	37.18	35.97	31.90	23.38	19.74	187.79	618.48	804.27	Ensign.
10	Bertolette, Levi Calvin	44.24	36.85	28.16	30.69	23.73	21.24	184.91	601.76	786.67	Ensign.
11	Cloke, William Snelling	37.10	32.67	29.48	30.25	22.68	17.28	169.46	603.15	778.61	Ensign.
12	Logan, George Wood	44.10	37.84	35.64	29.81	26.04	22.74	196.17	578.47	774.64	Ensign.
13	Moale, Edward, jr	41.44	35.31	35.86	25.63	23.03	20.46	181.73	592.80	774.53	Ensign.
14	Stearns, Ben Wade	36.82	35.86	35.97	16.50	20.58	20.34	166.07	603.73	769.80	Honorably discharged.
15	Bryan, Henry Francis.....	43.54	29.92	32.12	27.50	24.71	19.74	177.53	589.39	766.92	Ensign.
16	Hurlbut, Samuel Ray	57.24	34.21	28.16	27.61	24.15	19.08	170.45	596.38	766.83	Ensign.
17	Long, Andrew Theodore.....	42.56	33.77	32.67	30.80	24.64	21.78	186.22	577.62	763.84	Ensign.
18	Durell, Edward Hovey	41.16	31.90	33.00	32.45	23.24	21.18	182.83	579.64	762.57	Ensign.
19	Scales, Archibald Henderson	44.10	36.96	35.97	35.09	22.19	20.70	195.01	565.99	761.00	Ensign.
20	Brown, Ford Hopkins	39.34	38.83	33.33	30.14	20.58	20.34	182.56	575.42	757.98	Ensign.
21	McMillan, William Graham	40.04	34.10	28.05	27.61	22.68	18.84	171.32	580.66	751.98	Honorably discharged.
22	Churchill, Creighton	43.96	35.64	30.14	29.92	24.43	20.52	184.61	560.42	745.03	Ensign.
23	Stone, Clarence Morton	42.84	31.46	31.68	23.92	21.98	19.44	177.32	562.65	739.97	Ensign.
24	Peckham, Henry Lincoln.....	42.56	26.84	34.21	27.72	19.74	18.12	169.19	569.62	738.81	Honorably discharged.

24	Washington, Thomas.....	37.66	32.34	30.03	27.50	22.54	21.48	171.55	566.99	738.54	Ensign.
25	Boughter, Francis.....	43.96	36.30	31.13	29.37	26.18	20.52	187.46	542.81	730.27	Ensign.
26	Davis, Archibald Hilliard.....	42.56	32.89	29.26	28.38	21.14	19.32	173.55	550.63	724.18	Ensign.
27	Burrage, Guy Hamilton.....	40.60	34.32	30.36	34.43	21.28	20.40	181.39	541.41	722.80	Ensign.
28	Blue, Victor.....	39.20	29.15	29.70	27.50	24.50	19.32	169.37	542.37	711.74	Assistant engineer.
29	Draper, Herbert Lemuel.....	38.36	29.81	26.40	28.93	22.96	18.48	164.94	543.05	707.99	Second lieutenant, marine corps.
30	Johnston, Charles Ernest.....	35.70	28.93	27.94	21.78	28.07	19.02	161.44	544.86	706.30	Honorably discharged.
31	Russell, Frank Meade.....	42.14	31.68	22.33	32.01	18.34	18.72	165.22	540.02	705.24	Ensign.
P32	Edmonds, Samuel Preston.....	38.36	28.38	28.27	24.64	23.66	19.44	162.75	541.68	704.43	Honorably discharged.
33	Allen, Henry Asa.....	40.46	35.86	31.13	34.54	15.05	19.74	176.78	527.21	703.99	Honorably discharged.
P34	Pigott, Michael Royston.....	35.00	27.61	28.27	25.96	24.85	17.88	159.57	542.07	701.64	Honorably discharged.
35	Jackson, Richard Harrison.....	37.66	30.58	29.26	29.81	23.45	20.94	171.70	527.07	698.77	Honorably discharged.
36	Swanstrom, Frederick Emil.....	40.04	29.26	30.14	28.93	20.09	19.74	168.20	526.96	695.16	Honorably discharged.
37	Cochran, Claude Stanley.....	39.34	30.69	30.80	23.98	19.39	19.80	164.00	523.25	687.25	Honorably discharged.
38	Hudson, Charles Edward.....	37.52	30.14	27.83	25.74	19.81	20.94	161.98	506.52	668.50	Honorably discharged.
39	Balling, James Guy.....	35.00	25.08	24.97	24.75	20.65	18.60	149.05	517.35	666.40	Honorably discharged.
40	Craig, Colin Samuel.....	36.54	27.61	25.30	22.11	17.64	19.32	148.52	510.36	658.88	Honorably discharged.
P41	O'Halloran, Thomas Michael.....	39.20	30.14	28.71	24.64	21.84	19.32	153.85	488.19	652.04	Honorably discharged.
42	Moseley, William Branch.....	36.96	24.64	21.12	23.21	17.15	18.12	141.20	502.04	643.24	Honorably discharged.

24	Eli K. Cole	54.72	13.80	56.43	50.94	15.60	5.96	8.34	16.13	221.92	153.96	113.89	57.14	546.91
25	Louis J. Anderson	50.73	13.10	54.34	49.14	14.75	6.44	7.77	6.80	203.07	150.99	117.53	59.34	539.93
26	William B. Franklin	51.11	14.65	53.96	50.22	15.70	5.76	7.98	12.27	211.65	158.70	107.60	56.08	534.03
27	James H. Reid	49.78	13.80	54.72	46.02	14.65	5.52	7.65	16.27	209.01	163.64	105.26	55.33	533.24
28	Stuart W. Cramer	51.49	14.10	54.53	45.90	15.00	5.76	8.13	16.00	210.91	155.62	111.09	55.17	532.79
29	Herman O. Stickney	51.30	13.05	51.30	48.42	14.90	6.44	8.01	18.00	211.42	152.85	112.01	55.72	532.00
30	Edward L. Beach	50.35	14.75	51.49	46.98	14.35	5.92	7.95	14.40	206.19	156.10	105.53	57.21	525.03
31	Frederick B. Bassett, jr.	51.11	13.65	50.54	45.18	15.30	5.60	8.25	12.27	201.90	147.67	113.63	56.08	519.28
32	Herbert G. Gates	49.21	13.15	54.15	50.40	15.05	5.76	8.31	8.13	204.16	154.79	102.32	56.37	517.64
33	Moses D. Monroe	51.11	12.95	50.53	47.70	14.15	5.96	7.92	7.47	197.61	143.34	108.24	61.56	510.75
34	Henry A. Wiley	49.21	14.10	49.97	46.98	15.65	5.92	7.83	15.47	205.13	153.07	100.53	51.29	510.02
35	Theodore P. Kane	51.11	14.10	54.72	53.10	16.00	6.04	7.77	7.73	210.57	149.21	97.94	51.39	509.11

* Completed four years' course "with distinction."

b Completed four years' course "with credit."

r Resigned.

Merit-roll of the naval cadets of the first class.—Annual examination, June, 1889.

NAME.	Seamanship, ship-building, and naval architecture.		Seamanship, practice.		Ordnance and gunnery.		Astronomy, navigation, and surveying.		Navigation, practice.		Practical instruction in steam-engineering.		Least squares and residuals.		Physical measurements.		Physiology and hygiene.		Conduct.		Aggregate for fourth year.		Aggregate for third year.		Aggregate for second year.		Aggregate for first year.		General aggregate for four years.	
	68	68	20	20	72	72	52	52	12	12	8	8	20	20	20	20	12	12	20	20	304	228	152	76	760					
Maxima																														
Richmond P. Hobson	62.56	62.56	17.85	17.85	66.42	66.42	44.98	44.98	10.53	10.53	6.60	6.60	18.05	18.05	18.05	18.05	10.56	10.56	18.80	18.80	*274.40	196.23	134.75	68.25	673.63					
George H. Rock	60.52	60.52	17.75	17.75	66.24	66.24	46.28	46.28	10.56	10.56	7.00	7.00	17.85	17.85	18.15	18.15	9.15	9.15	19.07	19.07	*272.57	192.76	137.63	68.45	671.41					
Arthur B. Hoff	58.31	58.31	17.80	17.80	62.28	62.28	43.03	43.03	10.65	10.65	5.70	5.70	17.45	17.45	17.25	17.25	10.32	10.32	19.20	19.20	*261.99	187.64	139.07	72.05	660.75					
Nathan C. Twining	56.61	56.61	16.85	16.85	63.90	63.90	41.86	41.86	9.99	9.99	6.50	6.50	16.15	16.15	16.10	16.10	9.75	9.75	16.53	16.53	254.24	186.89	133.18	68.15	642.46					
Benjamin F. Hutchison	53.38	53.38	16.65	16.65	59.22	59.22	44.07	44.07	10.53	10.53	6.60	6.60	16.55	16.55	16.85	16.85	10.17	10.17	18.67	18.67	252.69	178.67	132.68	66.88	630.92					
William V. Pratt	54.74	54.74	17.05	17.05	61.56	61.56	40.95	40.95	10.98	10.98	6.10	6.10	15.05	15.05	15.75	15.75	9.63	9.63	14.80	14.80	246.61	173.43	124.97	67.11	612.12					
Sumner E. Kittelle	55.25	55.25	17.60	17.60	56.34	56.34	37.83	37.83	9.36	9.36	6.50	6.50	13.50	13.50	16.15	16.15	10.71	10.71	19.87	19.87	243.01	170.07	125.20	62.01	603.29					
George R. Marvell	49.47	49.47	16.60	16.60	55.44	55.44	39.78	39.78	9.63	9.63	6.10	6.10	15.05	15.05	13.90	13.90	8.67	8.67	18.93	18.93	233.78	173.13	126.71	63.11	593.73					
Louis McC. Nulton	48.79	48.79	15.80	15.80	56.70	56.70	37.31	37.31	9.63	9.63	6.50	6.50	16.15	16.15	14.60	14.60	7.98	7.98	17.47	17.47	230.93	181.71	122.80	52.91	588.35					
Lewis C. Lucas	56.61	56.61	15.85	15.85	59.76	59.76	37.96	37.96	8.76	8.76	6.50	6.50	13.85	13.85	13.80	13.80	8.67	8.67	17.33	17.33	239.09	166.84	120.60	60.38	587.00					
John B. Patton	48.45	48.45	16.35	16.35	58.14	58.14	39.52	39.52	9.36	9.36	6.00	6.00	12.40	12.40	12.50	12.50	7.62	7.62	16.13	16.13	227.47	170.31	112.40	56.51	566.69					
Bertram S. Neumann	51.17	51.17	17.00	17.00	53.82	53.82	34.32	34.32	9.39	9.39	6.00	6.00	12.60	12.60	13.75	13.75	8.25	8.25	18.67	18.67	224.97	169.32	116.85	54.61	565.75					
Charles G. Long	46.07	46.07	14.70	14.70	53.28	53.28	35.88	35.88	9.09	9.09	6.20	6.20	14.55	14.55	14.95	14.95	8.13	8.13	16.27	16.27	219.12	158.21	123.87	53.63	564.93					
William D. MacDongall	53.55	53.55	15.15	15.15	52.74	52.74	33.67	33.67	8.31	8.31	6.50	6.50	13.65	13.65	13.70	13.70	8.91	8.91	14.00	14.00	220.18	166.51	118.99	59.00	559.53					
George W. Danforth	47.94	47.94	14.95	14.95	51.30	51.30	34.71	34.71	7.80	7.80	6.40	6.40	12.90	12.90	11.45	11.45	8.01	8.01	16.13	16.13	214.59	176.84	120.05	58.05	554.53					
Thomas P. Magruder	49.81	49.81	15.75	15.75	58.68	58.68	42.51	42.51	8.64	8.64	5.10	5.10	13.90	13.90	14.55	14.55	8.10	8.10	13.87	13.87	236.91	152.46	113.09	59.05	555.51					
Edward R. Lowndes	47.77	47.77	15.30	15.30	53.46	53.46	35.75	35.75	8.46	8.46	6.00	6.00	15.20	15.20	14.60	14.60	7.92	7.92	11.60	11.60	216.06	166.83	114.83	56.95	554.67					
Louis R. de Steiguer	46.41	46.41	14.05	14.05	53.28	53.28	37.44	37.44	9.12	9.12	5.90	5.90	15.55	15.55	14.45	14.45	8.10	8.10	15.60	15.60	219.90	163.04	108.71	56.55	549.20					
George B. Bradshaw	47.94	47.94	13.20	13.20	58.50	58.50	37.70	37.70	8.19	8.19	5.90	5.90	15.00	15.00	14.20	14.20	7.86	7.86	7.33	7.33	216.12	166.88	108.91	57.27	549.18					
William W. Phelps	51.34	51.34	15.50	15.50	56.70	56.70	38.48	38.48	8.76	8.76	5.80	5.80	13.75	13.75	13.35	13.35	8.55	8.55	14.13	14.13	226.36	155.35	106.90	54.61	543.22					
Louis A. Kaiser	44.54	44.54	13.80	13.80	54.72	54.72	35.10	35.10	8.79	8.79	5.60	5.60	14.05	14.05	12.00	12.00	8.19	8.19	6.93	6.93	203.72	165.67	113.83	58.93	542.15					
Cleland N. Offley	46.92	46.92	13.90	13.90	50.40	50.40	35.23	35.23	8.01	8.01	6.50	6.50	13.25	13.25	12.75	12.75	7.95	7.95	16.27	16.27	211.18	157.51	115.50	57.68	541.87					
William C. Cole	47.26	47.26	16.35	16.35	49.86	49.86	34.45	34.45	8.64	8.64	5.80	5.80	13.60	13.60	15.00	15.00	8.76	8.76	12.00	12.00	211.72	157.20	113.26	59.41	541.59					

24	George G. Mitchell.....	46.07	14.65	55.08	37.18	9.42	6.10	13.00	14.70	8.01	18.80	223.01	156.11	109.21	52.24	540.57
25	Ben H. Fuller.....	47.94	13.65	58.50	40.56	9.93	5.80	16.00	14.35	8.22	8.67	223.62	151.21	109.72	55.70	540.25
26	Charles A. Brand.....	48.28	15.90	53.28	35.36	9.75	5.80	14.70	13.95	8.73	12.80	218.55	150.71	107.73	62.77	539.76
27	Philip Williams.....	49.30	12.75	53.46	34.97	8.52	6.20	13.30	12.85	8.16	12.13	211.64	159.85	106.42	57.47	535.38
28	Robert E. Carney.....	51.34	17.15	51.84	35.49	8.25	6.10	11.40	13.85	8.43	14.53	218.38	151.90	104.02	55.47	529.77
29	Warren J. Terhune.....	44.88	14.15	49.86	33.93	7.74	5.80	13.30	13.05	8.67	7.20	198.58	156.82	111.81	59.98	527.19
30	Robert McM. Dutton.....	44.20	14.45	50.94	32.11	8.37	5.60	12.65	13.00	8.70	12.67	202.69	148.92	107.65	54.29	513.55
31	William K. Harrison.....	43.35	14.30	48.78	34.58	8.49	5.80	13.35	13.30	7.98	15.47	205.40	150.68	101.71	52.70	510.49
32	George W. Kirk.....	43.84	14.45	46.26	33.28	8.13	5.60	12.80	13.05	7.50	12.40	197.31	146.82	108.87	54.23	507.23
33	Julius Prochazka.....	43.69	15.95	45.00	34.84	8.94	6.50	12.90	12.90	7.89	17.87	206.48	147.21	98.08	51.74	503.51
34	Ernest B. Anderson.....	43.35	13.20	45.00	33.67	8.73	5.90	12.55	11.85	8.22	16.27	198.74	146.39	97.76	50.91	493.80
35	George L. Fermier.....	47.26	17.20	45.90	32.89	9.09	6.90	12.50	13.35	0.00	0.00	185.09	148.94	106.78	51.38	492.19

* Completed four years' course "with distinction."

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r Resigned.

Merit-roll of naval cadets, second class, 40 members, annual examination, June, 1889.

Order of annual merit.	NAME.	Astronomy, navigation, and surveying.	Steam-machinery, marine engines, and boilers.	Practical work in steam- engineering.	Mechanics and applied mathematics.	Physics.	Modern languages.	Mechanical drawing.	Conduct.	Aggregate.
	Maxima	12	48	12	60	48	20	16	12	228
*1	Thomas F. Ruhm	9.69	41.64	10.05	52.35	42.36	17.75	13.52	9.00	196.36
2	Lawrence Spear	9.90	39.48	9.87	51.60	41.88	17.75	13.32	9.00	192.80
3	Noah T. Coleman	9.90	39.84	9.87	49.50	40.32	16.70	14.04	6.42	186.59
4	Frank A. Schofield	10.08	39.84	10.32	41.55	41.76	17.50	13.76	9.84	184.65
5	Urban T. Holmes	9.03	38.16	10.17	49.80	36.84	15.60	13.80	7.68	181.08
6	Jehu V. Chase	9.24	38.28	10.23	47.10	37.92	16.85	13.60	7.56	180.78
7	Alonzo Gartley	8.58	38.88	10.14	50.70	34.56	13.70	14.92	5.88	177.36
8	Cleland Davis	8.55	35.52	9.99	43.80	37.20	17.00	14.40	7.08	173.54
9	Henry G. Ziegemeier	9.06	33.48	10.14	41.40	36.72	17.20	12.80	10.44	171.24
10	Matt. H. Signor	9.18	33.24	9.03	50.10	37.80	17.35	12.32	0.60	169.62
11	Montgomery M. Taylor	8.37	36.24	10.32	40.05	34.32	17.25	14.16	5.46	166.17
12	Claude B. Price	8.28	38.04	9.57	38.10	33.72	15.85	12.52	9.96	166.04
13	Frank B. Sullivan	8.82	35.52	9.27	42.45	35.76	14.45	13.12	6.24	165.63
14	John M. Blankenship	8.10	34.68	10.08	37.80	33.12	14.65	14.88	10.26	163.57
15	Lawrence H. Moses	8.55	33.72	8.55	43.20	36.00	18.25	10.64	4.38	163.29
16	George W. Williams	9.00	34.08	9.36	41.40	34.92	15.95	12.08	5.16	161.95
17	Charles O. Bond	8.46	32.52	10.17	39.90	34.20	14.45	12.84	8.52	161.06
18	William H. Buck	8.19	32.04	10.08	37.80	34.44	15.65	12.44	9.90	160.54
19	Albertus W. Catlin	8.94	31.56	10.32	40.05	33.72	14.45	12.60	7.68	159.32
20	Claude Bailey	7.80	33.24	9.87	40.95	31.44	15.25	12.16	8.28	158.99
21	Cyrus L. Radford	7.68	33.36	9.87	39.00	31.92	13.05	13.72	10.20	158.80
22	Henry S. Ritter	7.71	31.56	9.63	38.70	31.32	14.45	12.64	12.00	158.01
23	Thomas C. Treadwell	8.56	32.64	9.21	38.10	34.08	15.10	11.64	7.92	157.27
24	William A. Snow	7.11	30.00	10.14	40.05	30.84	14.70	14.04	10.38	157.26
25	Wendell C. Neville	7.50	31.80	9.60	37.65	31.56	15.30	13.08	10.20	156.69
26	Lay H. Everhart	7.92	34.44	9.60	37.80	31.32	12.55	13.76	8.34	155.73
27	Julius L. Latimer	8.40	33.00	9.78	38.70	32.04	14.65	10.76	7.92	155.25
28	Lucius C. Bostwick	8.01	35.16	9.84	37.20	33.60	13.90	13.04	4.08	154.83
29	John H. Dayton	8.88	32.52	9.72	39.15	33.00	14.55	10.96	4.08	152.86
30	William A. Moffett	7.35	30.24	10.32	36.90	29.28	14.05	13.56	10.56	152.26
31	Doctor E. Dismukes	8.01	30.36	9.81	38.55	31.92	13.35	12.00	7.62	151.62
†	Charles B. McVay	7.41	31.32	9.99	39.30	30.84	16.95	13.04	11.10	159.95
†	Charles T. Vogelgesang	7.95	31.44	10.35	35.10	33.48	17.45	12.52	10.14	158.43
§	Erwin H. McDonald	7.05	34.56	9.78	36.00	32.16	15.65	12.24	4.32	151.76
†	Franklin S. Rising	7.68	30.36	9.93	36.60	31.32	14.70	13.72	6.78	151.09
†	John R. Edie	6.00	28.56	9.78	38.10	28.80	17.10	13.44	7.50	149.28
s	Frederick L. Eaton								9.24	
s	Frank H. Kochersperger								11.82	
s	Eugene D. Ryan								9.72	
s	William T. Saunders								6.60	

s Sick; turned back to next lower class.

Merit-roll of naval cadets, third class, 61 members, annual examination, June, 1889.

Order of annual merit.	NAME.	Trigonometry, analytical geometry, and descriptive geometry.	Chemistry and physics.	English, history, and the Constitution.	French, Spanish, and German.	Mechanical drawing.	Conduct.	Aggregate.
		48	24	24	24	24	8	152
*1	Frank B. Zahm	47.88	21.60	22.50	22.44	23.04	7.36	144.82
*2	Horatio G. Gillmor	48.12	21.48	22.62	21.78	21.54	7.01	142.55
*3	Richard M. Watt	45.48	19.74	20.52	20.76	21.24	7.62	135.36
*4	Henry G. Smith	45.12	20.40	20.40	21.60	20.52	7.20	135.24
*5	Reginald R. Belknap	40.32	19.56	21.72	22.74	22.44	6.75	133.53
*6	Daniel B. Ninde	41.16	18.60	21.72	21.66	23.88	6.02	133.04
*7	John H. Rowen	46.68	19.50	17.64	16.86	24.84	5.15	130.67
*8	De Witt Blamer	46.20	19.56	19.86	19.02	20.10	5.31	130.05
*9	Clark D. Stearns	38.64	19.32	21.12	21.60	21.84	7.26	129.78
*10	Edwin T. Pollock	40.20	19.26	21.24	21.84	19.98	7.10	129.62
11	Henry C. Kuenzli	39.00	18.18	21.78	21.90	21.36	5.76	127.98
12	Harley H. Christy	40.32	18.42	20.58	19.02	20.58	7.36	126.28
13	Lucien G. Smith	36.72	19.02	21.84	20.58	20.22	7.07	125.45
14	Henry H. Hough	33.84	16.56	19.98	24.48	22.50	7.26	124.62
15	Albert S. McLemore	35.52	19.32	21.12	23.70	19.98	4.54	124.18
16	Milton E. Reed	34.80	18.84	20.52	19.32	23.04	7.58	124.10
17	Arthur L. Willard	34.08	20.70	22.44	21.24	18.00	6.98	123.44
18	John G. F. Moale	33.00	17.70	19.26	21.30	24.18	6.78	122.22
19	Charles F. Preston	38.52	18.12	17.94	18.96	20.76	7.17	121.47
20	Renwick J. Hartung	37.08	18.36	19.32	17.94	20.16	6.98	119.84
21	Noble E. Irwin	39.96	17.82	17.76	16.92	20.88	5.41	118.75
22	Waldo Evans	36.48	18.84	18.30	18.06	20.10	6.46	118.24
23	Charles R. Emrich	36.24	19.20	19.26	18.78	20.46	3.71	117.65
24	William H. McGrann	34.56	16.74	20.88	19.68	19.26	5.47	116.59
25	Bion B. Bierer	34.08	18.60	19.08	17.70	19.02	6.56	115.04
26	Robert L. Flowers	35.04	17.34	18.60	18.72	18.12	6.40	114.22
27	Richard H. Leigh	35.88	16.68	17.88	16.74	19.08	7.23	113.49
28	Jay H. Sypher	32.28	17.94	19.86	18.18	18.96	5.25	112.47
29	William D. Brotherton	33.60	16.14	18.66	17.88	19.92	5.54	111.74
30	Irving Blount	33.60	16.62	18.18	18.30	17.76	7.20	111.66
31	Archibald Anthon	31.20	16.86	17.70	21.30	21.24	3.04	111.34
32	James F. Carter	31.56	16.74	20.16	17.88	17.76	6.37	110.47
33	Adelbert Althouse	32.64	16.14	17.22	17.10	20.28	6.88	110.26
34	Harry H. Caldwell	31.08	17.40	18.66	19.14	18.36	5.57	110.21
35	George H. Shepard	31.32	18.30	20.04	20.10	17.76	2.50	110.02
36	Rufus H. Lane	31.80	18.90	18.48	17.34	18.72	4.77	110.01
37	Dion Williams	30.60	17.22	19.98	17.64	20.76	3.71	109.91
38	William H. Ford	30.48	15.66	17.34	18.90	19.68	6.85	108.91
39	William M. McKelvy	30.96	15.72	18.66	18.00	18.42	6.56	108.32
40	Harry E. Smith	32.40	16.50	16.44	15.90	21.54	5.38	108.16
41	Thomas J. Senn	35.04	15.96	19.14	16.68	15.84	5.18	107.84
42	Edward Trickle	30.96	15.18	17.34	17.58	19.86	6.32	107.74
43	George Richards	32.40	17.94	15.96	16.32	20.52	3.07	106.21
44	John T. Myers	30.48	15.66	18.60	16.74	18.84	3.81	104.13
45	George W. Laws	31.56	16.26	17.70	17.58	18.18	2.50	103.7

Merit-roll of naval cadets, third class, 61 members, etc.—Continued.

Order of annual merit.	NAME.	Trigonometry, analytical geometry, and descriptive geometry.	Chemistry and physics.	English history, and the Constitution.	French, Spanish, and German.	Mechanical drawing.	Conduct.	Aggregate.
	Maxima	48	24	24	24	24	8	
46	David V. H. Allen.....	31.68	16.20	17.82	18.66	16.14	3.20	103.70
47	Elisba Theall.....	30.48	15.30	16.14	16.38	19.08	4.99	102.37
48	Charles W. Lyle.....	30.72	16.26	17.52	15.48	16.68	5.66	102.32
49	Horace G. Macfarland.....	31.92	17.10	18.36	17.16	15.84	1.31	101.69
<i>r</i> 50	Edward G. Russell.....	31.08	16.14	17.40	16.38	16.80	3.74	101.54
51	Louis H. Gross.....	31.68	16.50	17.10	17.04	16.62	2.40	101.34
52	Roby Robinson.....	31.80	16.08	15.72	15.90	16.92	3.87	100.29
53	William W. Beck.....	30.60	15.06	15.60	15.42	18.00	2.56	97.24
+	Sullivan T. Sparkman.....	29.16	16.62	19.32	19.86	18.54	6.53	110.03
+	Louis J. Maill.....	30.60	14.76	19.02	19.26	19.20	4.70	107.54
+	Chester Wells.....	29.04	16.08	19.26	16.26	17.40	4.22	102.26
+	Bernard H. Camden.....	33.00	14.16	16.98	16.08	17.70	2.82	100.74
<i>c</i>	Kaga K. Nire.....	34.44	12.36	15.78	13.02	20.22	4.83	100.65
+	Thomas T. Kellogg.....	29.52	15.06	16.32	16.50	17.64	2.75	97.79
+	William J. Reese.....	29.76	14.40	16.44	16.26	16.38	0.83	94.07
<i>a</i>	John K. Robison.....	.....	.....	.....	.....	.....	6.08	.....

a Absent, sick; continued with class, subject to examination.

c Continued with class.

r Resigned.

Merit-roll of naval cadets, fourth class, 64 members, annual examination, June, 1889.

Order of annual merit.	NAME.	English and history.	Algebra and geometry.	French, Spanish, and German.	Conduct.	Aggregate.
	Maxima	24	24	24	4	76
*1	John D. Beuret	21.72	24.54	22.38	3.24	71.88
*2	Frederick A. Traut	19.26	21.84	24.12	3.44	68.66
*3	William C. Dawson	22.44	19.02	23.82	3.07	68.35
*4	Homer L. Ferguson	21.60	21.00	22.14	3.48	68.22
*5	Charles T. Jewell	20.52	22.32	21.06	2.59	66.49
*6	Luke McNamee	21.30	20.46	20.58	3.51	65.85
*7	George C. Day	21.06	22.44	19.02	3.23	65.75
8	Joseph E. McDonald	18.90	22.14	18.90	3.61	63.55
9	John R. Y. Blakely	18.78	21.24	19.38	3.08	62.48
10	Frederick L. Sawyer	21.54	17.34	19.32	3.81	62.01
11	Joseph R. Campbell	20.28	18.72	19.68	3.01	61.69
12	Aaron L. Gamble	20.76	17.58	19.44	2.91	60.69
13	Arthur Rice	18.24	18.30	20.28	3.73	60.55
14	Leon S. Thompson	17.88	17.58	21.18	3.87	60.51
15	Robert K. Crank	18.60	17.10	21.84	2.89	60.43
16	Emmett R. Pollock	19.20	16.56	22.02	2.64	60.42
17	Holden A. Evans	20.04	18.84	17.82	3.67	60.37
18	Charles L. Hussey	19.98	18.66	18.30	3.33	60.27
19	Theodore H. Low	19.38	19.68	18.12	2.44	59.62
20	Thomas L. Stitt	19.98	16.56	19.26	3.67	59.47
21	Powers Symington	19.14	15.84	20.88	3.13	58.99
22	John F. Hines	18.06	18.72	18.00	3.89	58.67
23	Charles Allen	18.00	17.70	19.86	3.09	58.65
24	Frederick W. Stopford	18.00	17.52	21.30	1.17	57.99
25	Edgar E. Arison	17.88	16.32	21.78	1.91	57.89
26	Thomas S. Borden	19.02	15.48	20.88	2.48	57.86
27	Gregory C. Davison	18.60	19.38	16.68	3.19	57.85
28	Washington D. Gibbs	16.26	20.70	18.12	2.68	57.76
29	Joel R. P. Pringle	17.22	15.72	21.48	3.20	57.62
30	James Sheehan	16.26	17.58	20.04	3.39	57.27
31	Ralph C. Chadbourne	20.46	15.00	17.88	3.73	57.07
32	Benjamin B. McCormick	19.32	15.12	18.66	3.49	56.59
d33	Herbert E. McReavy	17.64	15.48	20.28	3.12	56.52
34	Howard W. Huffington	19.20	16.92	17.04	3.35	56.51
35	Rozier B. Larkin	18.18	15.78	21.36	1.05	56.37
36	George Wedekind	18.24	16.56	17.70	3.52	56.02
37	Joseph C. Breckinridge	20.22	16.26	18.48	0.79	55.75
38	William E. Hoblitzelle	17.76	16.20	17.94	3.81	55.71
39	Beriah E. Jones	17.46	16.50	18.30	3.44	55.70
40	Yates Stirling, jr	16.86	17.70	19.08	1.83	55.47
41	Fred R. Payne	18.78	17.04	18.30	1.11	55.23
42	Randolph Ridgely	18.66	16.62	17.40	2.37	55.05
43	John H. Russell, jr	16.80	16.68	17.34	3.67	54.49
44	Leonard Goodwin	16.62	15.18	19.74	2.89	54.43
45	Joseph C. Kilbourne	17.52	16.02	18.66	2.01	54.21

d Dismissed.

Merit-roll of naval cadets, fourth class, 64 members, etc.—Continued.

Order of annual merit.	NAME.	English and history.	Algebra and geometry.	French, Spanish, and German.	Conduct.	Aggregate.
	Maxima	24	24	24	4	76
46	John Curlett	17.40	15.00	18.12	3.68	54.20
47	Austin R. Davis.....	15.66	18.24	18.48	1.80	54.18
48	George H. Mather.....	17.16	15.72	17.34	3.63	53.85
49	Raymond De L. Hasbrouck.....	17.40	16.44	16.80	3.05	53.69
50	Walter Ball	16.74	16.62	17.28	2.73	53.37
51	Stanley P. Dennett	16.86	16.32	16.98	3.17	53.33
52	George Mallison	17.76	15.78	17.34	2.45	53.33
53	John S. Porter	17.22	16.86	17.04	1.97	53.09
54	Raymond B. Swigart.....	16.26	15.60	17.46	3.69	53.01
55	Charles F. Macklin	15.72	16.44	17.34	3.32	52.82
56	Philip M. Bannon.....	16.44	15.18	16.86	3.44	51.92
57	Josiah G. Sawyer	16.50	15.00	16.02	3.83	51.35
58	Edward S. Kellogg.....	15.78	16.14	15.00	3.76	50.68
†	Christian C. H. Zillman	18.84	14.64	17.70	3.48	54.66
†	Warren Rodney	18.12	14.28	18.12	3.31	53.83
†	Charles T. Pollard, jr	17.16	14.28	19.08	3.11	53.63
†	Stanford E. Moses	16.20	13.14	16.74	3.60	49.68
§	Rollin R. Nevitt	16.56	14.46	14.70	3.33	49.05
§	William V. Logan.....	8.58	7.38	8.46	3.27	27.69

REGULATIONS

GOVERNING

THE ADMISSION OF CANDIDATES INTO THE NAVAL ACADEMY AS NAVAL CADETS.

NOMINATION.

I. The students at the Naval Academy shall be styled *Naval Cadets*.—(*Rev. Stat.*, § 1512, and act of Congress approved August 5, 1882.)

II. There shall be allowed at said Academy one Naval Cadet for every Member or Delegate of the House of Representatives, one for the District of Columbia, and ten at large.—(*Rev. Stat.*, § 1513, and act of Congress approved June 17, 1878.)

III. "The Secretary of the Navy shall, as soon after the fifth of March in each year as possible, notify, in writing, each Member and Delegate of the House of Representatives of any vacancy that may exist in his district. The nomination of a candidate to fill said vacancy shall be made upon the recommendation of the Member or Delegate, if such recommendation is made by the first day of July of that year; but, if it is not made by that time, the Secretary of the Navy shall fill the vacancy. The candidate allowed for the District of Columbia and all the candidates appointed at large shall be selected by the President."—(*Rev. Stat.*, § 1514.)

IV. Candidates allowed for Congressional districts, for Territories, and for the District of Columbia must be actual residents of the districts or Territories, respectively, from which they are nominated. *And all candidates must, at the time of their examination for admission, be not less than fifteen nor more than twenty years of age, and physically sound, well-formed, and of robust constitution.*—(*Rev. Stat.*, § 1517, and act of Congress approved March 2, 1889.)

V. "All candidates for admission into the Academy shall be examined according to such regulations and at such stated times as the Secretary of the Navy may prescribe. Candidates rejected at such examinations shall not have the privilege of another examination for admission to the same class unless recommended by the Board of Examiners."—(*Rev. Stat.*, § 1515.)

NOTE.—"Section 1515 is to be read as if the dates fixed by the regulations of the academy for the examination of candidates for admission were inserted therein; and hence, by the existing law, the season for recommendations and nominations of naval cadets begins after the 5th of March and expires on the 22nd of September in each year."—(*Op. XVI*, p. 621.)

VI. "When any candidate who has been nominated upon the recommendation of a Member or Delegate of the House of Representatives is found, upon examination, to be physically or mentally disqualified for admission, the Member or Delegate shall be notified to recommend another candidate, who shall be examined according to the provisions of the preceding section."—(*Rev. Stat.*, § 1516.)

VII. "Naval Cadets found deficient at any examination shall not be continued at the Academy or in the service unless upon the recommendation of the academic board."—(*Rev. Stat.*, § 1519.)

VIII. "The academic course of naval cadets shall be six years."—(*Rev. Stat.*, § 1520.)

IX. Candidates who may be nominated in time to enable them to reach the academy by the fifteenth of May will receive permission to present themselves on that date to the superintendent for examination for admission. Those who may not be nominated in time to present themselves at the May examination will be examined on the first of September following.

When either of the above dates shall fall on Sunday the candidates shall present themselves on the Monday following.

Candidates will be required to enter the academy immediately after passing the prescribed examinations.

No leaves of absence will be granted to Cadets of the fourth class.

EXAMINATION.

X. Candidates will be examined physically by a board composed of three medical officers of the navy. Any one of the following conditions will be sufficient to cause the rejection of a candidate; viz.,

- Feeble constitution, inherited or acquired;
- Retarded development;
- Impaired general health;
- Decided cachexia, diathesis, or predisposition to disease;
- Any disease, deformity, or result of injury that would impair efficiency; such as—
- Weak or disordered intellect;
- Cutaneous or communicable disease;
- Unnatural curvature of spine, torticollis, or other deformity;
- Inefficiency of either of the extremities or large articulations from any cause;
- Epilepsy or other convulsions within five years;
- Impaired vision, disease of the organs of vision, imperfect color sense;
- Impaired hearing or disease of the ear;
- Chronic nasal catarrh, ozena, polypi, or great enlargement of the tonsils;
- Impediment of speech to such an extent as to impair efficiency in the performance of duty;
- Disease of heart or lungs or decided indications of liability to cardiac or pulmonary affections;
- Hernia or undescended testis;
- Varicocele, sarcocele, hydrocele, stricture, fistula, hemorrhoids, or varicose veins of lower limbs;
- Disease of the genito-urinary organs;
- Chronic ulcers, ingrowing nails, large bunions or other deformity of feet.

Attention will also be paid to the stature of the candidate, and no one *manifestly* under size for his age will be received at the academy. In the case of doubt about the physical condition of the candidate, any marked deviation from the usual standard of height or weight will add materially to the consideration for rejection. Five feet will be the minimum height for the candidate.

XI. Candidates will be examined mentally by the academic board in reading, writing, spelling, arithmetic, geography, English grammar, United States history, and algebra. Deficiency in any one of these subjects will be sufficient to insure the rejection of the candidate.

GENERAL CHARACTER OF THE EXAMINATION.

READING AND WRITING.—Candidates must be able to read understandingly, and with proper accent and emphasis, and to write legibly, neatly, and rapidly.

SPELLING.—They must be able to write from dictation paragraphs from standard pieces of English literature, both prose and poetry, sufficient in number to test fully their qualifications in this branch. The spelling throughout the examination will be considered in marking the papers.

ARITHMETIC.—The candidate will be required—

To express in figures any whole, decimal, or mixed number; to write in words any given number; to perform with facility and accuracy the various operations of addition, subtraction, multiplication, and division of whole numbers whether abstract or concrete, and to use with facility the tables of money, weights, and measures in common use, including English money.

To reduce compound numbers from one denomination to another, and to express them as decimals, or fractions of a higher or lower denomination; to state the number of cubic inches in a gallon and the relation between the Troy and Avoirdupois pounds and to reduce differences of time to differences of longitude and *vice versa*.

To define prime and composite numbers; to give the tests of divisibility by 3, 5, 7, 9, 11, 25, and 125; to resolve numbers into their prime factors, and to find the least common multiple and the greatest common divisor of large as well as of small numbers.

To be familiar with all the processes of common and decimal fractions, and to give clearly the reasons for such processes, and to be able to use the contracted methods of multiplication and division given in the ordinary text-books on arithmetic.

To define ratio and proportion, and to solve problems in simple and compound proportion:

To solve problems involving the measurement of rectangular surfaces and of solids, to find the square roots and the cube roots of numbers, and to solve simple problems under percentage, interest, and discount.

The candidates are required to possess such a thorough understanding of all the fundamental operations of arithmetic as will enable them to apply the various principles to the solution of any complex problem which can be solved by the methods of arithmetic; in other words, they must possess such a complete knowledge of arithmetic as will enable them to proceed at once to the higher branches of mathematics without further study of arithmetic.

ALGEBRA.—The examination in *algebra* will be elementary in character, and will be limited to questions and problems upon the fundamental rules, factoring, algebraic fractions, and simple equations of one or more unknown quantities.

GRAMMAR.—In *English grammar* candidates must exhibit a familiarity with all the parts of speech and the rules in relation thereto; they must be able to parse any ordinary sentence given to them, and generally must understand those portions of the subject usually taught and comprehended under the heads of orthography, etymology, and syntax.

The questions will usually be arranged in three divisions. The first division will contain questions somewhat like these:

Explain the uses of the objective case. What verbs have distinction of voice? Give the possessive plural of *sea, valley, basis, stratum, bandit*.

The second division will contain one or more sentences to be parsed; *e.g.*,

"They were always a strange family; they rarely acted like other people; their hearts were in the right place, but their heads always seemed to be doing anything but what they ought." Such a sentence must be parsed *fully*, giving the part of speech, and kind, case, voice, mood, tense, number, person, degree of comparison, etc., as the case may be, of each word, and its relation to the other words; thus,—

Strange is a descriptive adjective, positive degree. It qualifies the noun *family*.

Comparative, *stranger*.

Superlative, *strangest*.

Acted, an intransitive verb, regular (or weak) in conjugation, indicative mood, past tense, third person, plural number. Its subject is *they*.

The third division will contain a number of incorrect sentences to be corrected; thus,—

1. *Describe the sources from which our knowledge of these events are derived.* 2. *How sweetly their voices sound!* 3. *Try and do as you was told!* 4. *I should have liked to have*

been there and seen it. 5. *There's a sweet little cherubim sits up aloft to keep watch for the life of Poor Jack!*

Among these, correct sentences will sometimes be introduced to test more thoroughly the knowledge of the candidate.

Since the school grammars used in different parts of the country vary among themselves in their treatment of certain words, an answer approved by any grammar of good repute will be accepted.

GEOGRAPHY.—Candidates will be required to pass a satisfactory examination, written or oral, or both, in descriptive geography, particularly of our own country. Questions will be given under the following heads: the definitions of latitude and longitude; the zones; the grand divisions of the land and water; the character of coast lines; the direction and position of important mountain-chains and the locality of the higher peaks; the position and course of the principal rivers, their tributaries, and the bodies of water into which they empty; the position of important seas, bays, gulfs, and arms of the sea; the position of independent states, their boundaries and capital cities; the position and direction of great peninsulas and the situation of important and prominent capes, straits, sounds, channels, and the most important canals; great lakes and inland seas; position and political connection of important islands, and colonial possessions; localities of cities of historical, political, or commercial importance, attention being especially called to the rivers and bodies of water on which cities are situated; the course of a vessel in making a voyage between well known sea-ports.

The candidate's knowledge of the geography of the *United States* can not be too full or specific on all the points referred to above. Accurate knowledge will also be required of the position of the country with reference to other states, and with reference to latitude and longitude, of the boundaries and relative position of the States and Territories, of the name and position of their capitals, and of other important cities and towns.

HISTORY.—Candidates should be familiar with as much of the history of the United States as is contained in the ordinary school histories.

The examination will be either written or oral, or both, and questions of the same general character as the following will be given:

1. Name the earliest European settlements within the present limits of the United States, and give their positions. When and by whom were these settlements made?

2. Explain the three forms of government in the colonies: royal, proprietary, and charter. Name the colonies that originally existed within the present limits of Massachusetts; of Connecticut. When were these colonies united? What did the colony of Pennsylvania include? When was it divided?

3. State the leading events of the colonial wars, and give the results of each war.

4. What were the remote and immediate causes of the Revolution? Explain the navigation acts, the stamp act, writs of assistance. Name the principal battles and other leading events in the wars of the United States, giving the names of commanding officers and stating the results of the battles.

5. Give an account of the formation and adoption of the Constitution.

Give the names of the Presidents, in order, and the leading events in each administration.

ADMISSION.

XII. Candidates who pass the physical and mental examinations will receive appointments as naval cadets, and become students at the academy. Each cadet will be required to sign articles by which he binds himself to serve in the United States navy eight years (including his time of probation at the naval academy) unless sooner discharged. The pay of a naval cadet is \$500 a year, commencing at the date of his admission.

XIII. Cadets will supply themselves, immediately after their admission, with the following articles; viz.,

One dress jacket	\$21.50	One hand-glass	\$0.45
One blouse	12.50	One jack-knife .....	.70
Two pairs trousers	23.00	Six sheets	3.42
Two working suits	1.86	Hammock clews .....	.40
One overcoat	23.50	One pair of bathing trunks .....	.20
One rubber coat	4.25	Three pairs of white thread gloves .....	.60
One rubber hat .....	.53	Two black silk neckties .....	.66
Two pairs of regulation leggins	1.44	Two clothes bags .....	.42
One parade cap	2.55	One hammock mattress	2.85
One knit cap .....	.66	<i>a</i> One requisition book .....	.40
One mug .....	.09	<i>a</i> One pass book .....	.40
One soap box .....	.62	<i>a</i> Stencil, ink, and brush .....	.45
One laundry book .....	.34	<i>a</i> One bottle of indelible ink .....	.18
One pair of blankets	3.00	<i>a</i> One wash basin and pitcher .....	.97
Two pairs of high shoes	7.50	<i>a</i> One pair of gymnasium slippers .....	.85
One pair of overshoes .....	.53	*One whisk brush .....	.13
Eight white shirts	8.00	*One coarse comb .....	.11
Twelve linen collars	2.04	*One cake of soap .....	.10
Eight pairs of cuffs	2.00	*One hair brush .....	.50
*Eight pairs of socks	1.84	*Stationery .....	.50
*Eight towels	1.84	*Twelve white handkerchiefs	2.52
*Shaving outfit	1.47	*One pair of suspenders .....	.36
*Four pairs of drawers (winter)	4.00	*Four night shirts	2.52
<i>b</i> Four pairs of drawers (summer)	1.60	*One tooth brush .....	.20
*Four undershirts (winter)	4.00	*Thread and needles .....	.15
<i>b</i> Four undershirts (summer)	1.60	*Blacking brush and blacking .....	.39

When moving into cadet quarters, cadets will supply themselves with the following articles; viz.,

<i>a</i> Two bedspreads	\$2.84	<i>a</i> One rug	\$0.90
<i>a</i> Two pairs of drill gloves	1.00	<i>a</i> One hair mattress	5.10
<i>a</i> One slop jar .....	.90	<i>a</i> One straw mattress	1.32
<i>a</i> Two spatter-cloths .....	.66	<i>a</i> One broom .....	.25
One hair pillow .....	.75	Six pillow cases	1.38
One mirror	1.31		

Cadets will supply themselves with the following additional articles when preparing to embark on board the practice-ship; viz.,

Three working suits	\$2.79	One pair of rubber leggins	\$0.65
Four woolen shirts	7.00	One pair of high shoes	3.75
Three white sailor hats	1.20	One knit cap .....	.66

Articles marked *a* will not be taken on board the practice-ship.

Of the articles marked *b* cadets entering in September must have four each.

The articles marked *, not being required to conform to a standard pattern, may be brought by the cadet from home, but all other articles must conform to the regulations, and must therefore be supplied by the store-keeper.

Each naval cadet must on admission deposit with the pay-officer the sum of \$20, for which he will be credited on the books of that officer, to be expended by direction of the superintendent in the purchase of text-books and other authorized articles besides those enumerated in the preceding article.

All deposits for clothing and the entrance deposit of \$20 must be made before a candidate can be received into the academy.

SUMMARY OF EXPENSES.

Deposit for clothing	\$169. 10
Deposit for books, etc	20. 00
Total amount required	189. 10

The value of clothing brought from home is to be deducted from this amount.

Each naval cadet *one month after admission* will be credited with the amount of his actual expenses in travelling from his home to the academy.

XIV. A naval cadet who voluntarily resigns his appointment within a year of the time of his admission to the academy will be required to refund the amount paid him for travelling expenses.

COURSE OF INSTRUCTION.

[Reference books are marked (*).]

FIRST YEAR—FOURTH CLASS.

FIRST TERM.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
<i>Mathematics.</i>	4	4	ALGEBRA: Fundamental operations; reduction and conversion of fractional and surd quantities; reduction and solution of equations of the first and second degrees; inequalities; involution and evolution.	Todhunter's Higher Algebra.
	2	4	GEOMETRY: Geometry of the straight line, of the circle, and of the plane; theory of proportion; properties of similar figures.	Chauvenet's Geometry.
<i>English Studies, History, and Law.</i>	2	4	ENGLISH: The structure and historical development of the English language; syntax; analysis of sentences; punctuation and capitals; exercises in the composition of letters.	Whitney's Essentials of English Grammar. Hart's Punctuation. Webster's Dictionary.*
	3	4	HISTORY: Outlines of history, especially the history of Greece and Rome, and of the states of western Europe; historical geography; important points in naval history, by notes or lectures.	Swinton's Outlines of the World's History. Labberton's Historical Atlas.*
<i>Modern Languages.</i>	5	4	FRENCH: "Natural method of teaching languages."	La Parole Francaise, Sauveur and Van Daell. Bellows's Pocket Dictionary.*

FIRST YEAR—FOURTH CLASS—Continued.

SECOND TERM.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
<i>Mathematics.</i>	3	4	ALGEBRA: Course for first term continued. Development of algebraic functions by means of indeterminate co-efficients and the binomial theorem; permutations and combinations; summation of series; continued fractions; logarithms; exponential equations; theory of equations, including the solution of numerical equations.	Hall and Knight's Higher Algebra. Bowditch's Useful Tables.
	2	4	GEOMETRY: Course for first term continued. Spherical geometry; the cone and the cylinder; mensuration of rectilinear figures, and of the sphere, cone, and cylinder; application of algebra to determinate geometry.	Chauvenet's Geometry.
<i>English Studies, History, and Law.</i>	2	4	ENGLISH: Rhetoric and composition; choice and use of words; kinds of composition; narration and description; argumentative composition; exercises in the composition of letters and telegrams. Themes.	A. S. Hill's Rhetoric. Ayres's Orthoëpist. Ayres's Verbalist.
	3	4	HISTORY: The History of England from the earliest times until the present; chronological tables and maps; survey of English literature during successive periods.	Green's Short History of the English People.
<i>Modern Languages.</i>	5½	4	FRENCH: "Natural Method." SPANISH: (Given as an advanced course.) "Natural method." GERMAN: (Given as an advanced course.) "Natural method."	Bercy: La Langue Française, 1 ^{re} partie. Histoire d'un Conscrit. Bellows's Pocket Dictionary;* Ybarras, English-Spanish Method. Seoane's Dictionary.* Dreyspring's Cumulative Method and German Verb Drill. Whitney's Dictionary.*

SECOND YEAR—THIRD CLASS.

FIRST TERM.

Department.	No. of recitations a week.	No. of months.	Subjects.	Text-books.
<i>Mathematics.</i>	1	4	DESCRIPTIVE GEOMETRY: Orthographic projections; representation of points, lines, and planes; problems relating to the right line and the plane; representations of surfaces of the second order.	Church's Descriptive Geometry.
	4	4	TRIGONOMETRY: Measures of arcs and angles; trigonometric functions; analytical investigations of trigonometric formulas, with their application to all the cases of plane and spherical triangles; construction and use of trigonometric tables; inverse trigonometric functions; De Moivre's theorem; solution of trigonometric equations; practical applications of trigonometry to the solution of plane and spherical triangles, the astronomical triangle, and the measurements of heights and distances.	Chauvenet's Trigonometry; Todhunter's Trigonometry. Bowditch's Useful Tables.
<i>English Studies, History, and Law.</i>	2	4	LOGIC: Deductive reasoning; terms; propositions; the syllogism; inductive reasoning; reasoning by analogy; fallacies.	W. Stanley Jevon's Logic.
	1	4	THEMES: Principles of composition; exercises in the composition of official dispatches, letters, and telegrams. HISTORY: Contemporary history, including the comparative study of governments, institutions, and political geography.	Ayres's Orthoëpist.* Ayres's Verbalist.* The School Herald. Martin's Statesman's Year Book.* Mitchell's Atlas.*
	2	4	LAW: Constitution of the United States.	Andrews's Manual of the Constitution.
<i>Modern Languages.</i>	3	4	FRENCH: "Natural method." SPANISH: (Given as an advanced course.) "Natural method." GERMAN: (Given as an advanced course.) "Natural method."	Böcher's Series of French Plays. Bercy La Langue Française 2 ^{me} Partie. Bellows's Dictionary.* Sauveur Petite Grammaire. Ybarras English-Spanish Method. Dreyspring's Cumulative Method and German Verb Drill.
<i>Mechanical Drawing.</i>	4	4	MECHANICAL DRAWING: Sketching from models; the use of instruments; construction of scales; notation and symbols used in mechanical drawings; construction of rectilinear and curved figures to scale; drawing section lines; round writing. Drawing exercises in descriptive geometry, including the projections of lines and planes, the construction of geometrical solids, and the projections and sections of surfaces and solids.	Tomkin's Machine Construction and Drawing.*

SECOND YEAR—THIRD CLASS—Continued.

SECOND TERM.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
<i>Physics and Chemistry.</i>	5	4	<p>PHYSICS: An elementary course intended to present the leading principles and the correlation of the branches of physical science, to which more time is devoted during the second and first class years. Constant practice with the fundamental and derived units of the C. G. S. system. Practical work in the physical laboratory; experiments illustrating the daily recitations and exact measurements of length, mass, volume, and specific gravity. Lectures.</p> <p>CHEMISTRY: Recitations in general and organic chemistry. Practical work in the chemical laboratory; experiments illustrating the daily recitations, and the determination of simple salts, acids, and bases. Lectures.</p>	<p>Daniell's Principles of Physics.</p> <p>Practical Physics, by Stewart and Gee.</p> <p>Remsen's General Chemistry.</p> <p>Remsen's Organic Chemistry.</p> <p>Lecture Notes.</p>
<i>Mathematics.</i>	1	4	DESCRIPTIVE GEOMETRY: Course for first term continued. Warped surfaces, and surfaces of revolution; development of single-curved surfaces; intersection of surfaces; tangent lines and planes; projections of the sphere; axometric projections; shades and shadows.	Church's Descriptive Geometry.
	4	4	ANALYTICAL GEOMETRY: Equations of the straight line and of the conic sections; transformation of co-ordinates; properties of the conic sections; equations to tangents and normals; determination of loci; discussion of the general equation of the second degree; equations of the plane, of lines in space, and of surfaces of the second order; the principal properties of surfaces of the second order; discussion of the general equation of the second degree in three variables.	C. Smith's Conic Sections; Aldis's Solid Geometry.

SECOND YEAR—THIRD CLASS—Continued.

SECOND TERM—continued.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
<i>English Studies, History, and Law.</i>	1	4	ENGLISH LITERATURE: Themes; lectures.	Shakespeare's <i>Julius Cæsar</i> , Rolfe's edition.
<i>Modern Languages.</i>	2	4	FRENCH: Continuation of first term course. SPANISH: Continuation of first term course. GERMAN: Continuation of first term course.	Same as first term.
<i>Mechanical Drawing.</i>	2½	4	MECHANICAL DRAWING: Sketching from models; representation of objects by projections; drawing the projections of models to scale; oblique projections; isometrical drawing; drawing screws, bolts, nuts, gearing, and details of guns, machinery, and engines; round writing. Drawing exercises in descriptive geometry, including the intersections of surfaces, development of single-curved surfaces, and problems on the surfaces of revolution.	Tomkin's <i>Machine Construction and Drawing</i> .*

THIRD YEAR—SECOND CLASS.

FIRST TERM.

Department.	No. of recitations a week.	No. of months.	Subjects.	Text-books.
<i>Steam Engineering.</i>	3	4	MARINE ENGINES AND BOILERS: Explanation of all the parts of an engine; types of engines; steam valves and other valves; generation of steam; distribution and expansion of steam; screw propellers and side wheels; the indicator and its diagrams; the power of an engine and computations relating to it; hydrometers; saturation; scale and its prevention; casualties; boilers; materials; combustion; transfer of heat; testing steam-engines; the principles of mechanism.	Sennett's Marine Steam-Engine. Goodeve's Elements of Mechanism.
<i>Mechanics and Applied Mathematics.</i>	5	2	DIFFERENTIAL CALCULUS: Functions; rates; differentials of functions; indeterminate forms; series; maxima and minima; geometrical applications; functions of two or more variables.	Rice and Johnson's Differential Calculus.
	5	2	INTEGRAL CALCULUS: The methods of integration; definite integrals; quadrature of surfaces; cubiture of volumes; rectification of curves; centres of gravity; moments of inertia; planimeters; rules for the approximate determination of areas and volumes; differential equations.	Johnson's Integral Calculus. Johnson's Differential Equations.
<i>Physics and Chemistry.</i>	5	4	PHYSICS: Recitations on simple harmonic motion; wave motions, sound, light, and heat. Practical work in the physical laboratory; experiments illustrating the daily recitations, and some exact measurements, such as the determination of the candle power of gas and electric lights, index of refraction of glass prisms and lenses and of liquids, focal length of lenses; length of light waves. Photography. CHEMISTRY: Short course in chemical analysis.	Daniell's Principles of Physics. Ganot's Physics. Stewart's Treatise on Heat. Practical Physics, by Stewart and Gee. Kohlrausch's Physical Measurements. Lecture Notes.
<i>Modern Languages.</i>	1	4	FRENCH: Reading and translation of professional articles, and conversation.	Professional French Reader. Bellows's Pocket Dictionary.* Sanveur Petite Grammaire.*
<i>Mechanical Drawing.</i>	2	4	MECHANICAL DRAWING: Sketching machinery and making working drawings; making tracings and blue prints of drawings; perspective.	Tomkin's Machine Construction and Drawing.

THIRD YEAR—SECOND CLASS—Continued.

SECOND TERM.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
<i>Astronomy, Navigation, and Surveying.</i>	2	4	THE CELESTIAL SPHERE: Spherical and rectangular co-ordinates; use of instruments, especially those for determining terrestrial latitudes and longitudes; different units of time and calendars; the moon; tides; motion of the solar system; solutions of the astronomical triangle; use of the Nautical Almanac.	White's Astronomy; Chauvenet's Spherical and Practical Astronomy; Bowditch's Navigator; American Ephemeris and Nautical Almanac.
<i>Steam Engineering.</i>	3½	4	Course for first term continued.	
<i>Mechanics and Applied Mathematics.</i>	5	4	MECHANICS: Kinematics; dynamics; kinetics; hydromechanics; the motion of projectiles; friction and other resistances; the application of mechanical principles to simple machines and to instruments.	Bowser's Analytical Mechanics. Bowser's Hydromechanics.
<i>Physics and Chemistry.</i>	4	4	PHYSICS: Recitations in light and heat concluded. Electricity and magnetism commenced. Practical work in the physical laboratory; calibration of thermometers; determination of the hygrometric state of the atmosphere; measurements of the coefficients of expansion and the specific heat and latent heat of various substances; other experiments illustrating the course of study and leading to the skillful use of instruments of precision. Photography. General experiments illustrating the phenomena of statical and voltaic electricity; setting up and comparing galvanic cells and secondary batteries; measuring their resistance and electro-motive force; calibration of galvanometers; determination of dip and horizontal intensity.	Same as first term, and Thompson's Electricity and Magnetism. Ayrton's Practical Electricity. Day's Exercises in Electrical Measurements. Lecture Notes.
<i>Modern Languages.</i>	1	1½	FRENCH: Reading French newspapers, and conversation on subjects of the day; themes and written translations.	Same as first term. French newspapers, and books of first term as reference books.

FOURTH YEAR—FIRST CLASS—LINE DIVISION.

FIRST TERM.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text books.
<i>Seamanship, Naval Construction, and Naval Tactics.</i>	4	4	<p>SEAMANSHIP: Uses of compass, lead, log, and sounding machines; principles of marlinspike seamanship, including cutting, fitting, and reeving rigging; description and uses of sails, their fittings and appliances; stowage and organization; management of boats; handling sails; management under sail and under steam; turning and maneuvering, wharfing, docking, towing, piloting, anchoring, mooring, etc.; emergencies; port drills and evolutions; duties of officers and crew; routine; rules of the road; laws of storms and management in cyclones; control of behavior among waves, and performance in general.</p> <p>NAVAL CONSTRUCTION: Definitions; history and practice of ship-building in wood, iron, and steel; systems of construction, subdivision, and armoring; systems of pumping, draining, ventilating, steering, and hoisting; fittings in general; distribution of armor, guns, and boats; special constructions; launching; types of ships; structural strength and strains; buoyancy and stability in the intact and the damaged conditions; theory and observation of waves; rolling and pitching; principles of stowage; resistance, propulsion, and steering of ships; qualities of ships; construction and use of diagrams of qualities; the use of qualities.</p> <p>NAVAL TACTICS: Organization of the fleet; school of the ship, section and squadron; evolutions of the fleet; signaling by Army and Navy, (English Morse) code, Navy and International codes of flag signals.</p>	<p>Luce's Seamanship. Special Notes and Drawings. Navy Department Pamphlets. White's Manual of Naval Architecture. Thearle's Naval Architecture. Thearle's Theoretical Naval Architecture. Navy and International Signal Books. Fleet Drill Book, Navy Department.</p>
<i>Ordnance and Gunnery.</i>	3	4	<p>ORDNANCE INSTRUCTIONS: Handling great guns; preparing ship for action; duties of officers and men when at quarters for exercise, and when engaged in battle; handling boat-howitzers and machine-guns afloat and on shore; landing of seamen and marines.</p>	<p>Ordnance Instructions. Text-book of Ordnance and Gunnery (Naval Academy publication).</p>

FOURTH YEAR—FIRST CLASS—LINE DIVISION—Continued.

FIRST TERM—continued.

Department.	No. of recitations a week.	No. of months.	Subjects.	Text-books.
<i>Ordnance and Gunnery.</i>			<p>INFANTRY TACTICS: School of the soldier; school of the company; school of the battalion; instruction for skirmishers.</p> <p>GUNNERY: The motion of projectiles in a non-resisting medium and in air; the methods of finding the trajectory, the remaining velocity, and the angle of fall; the dangerous space; sighting and pointing guns; the errors liable to occur in practice at sea, and the methods of avoiding them; the preparation of range tables, and corrections for jump and drift; the determination of ranges at sea.</p>	<p>Upton's Tactics.</p> <p>Text-book of Ordnance and Gunnery (Naval Academy publication).</p> <p>Exterior Ballistics (Naval Academy publication).</p> <p>Ordnance Notes, Office of Naval Intelligence.</p>
<i>Astronomy, Navigation, and Surveying.</i>	4	4	<p>THE CELESTIAL SPHERE: Spherical and rectangular co-ordinates; the use of instruments, especially those for determining terrestrial latitudes and longitudes; different units of time; calendars; the moon; tides; nebulae; motion of the solar system; solutions of the astronomical triangle; use of the Nautical Almanac.</p> <p>THE THEORY AND PRACTICE OF NAVIGATION, including instruction in the duties of the navigator, the construction and use of navigating instruments, the use of tables, and the solution of problems; determination of meridian distances.</p>	<p>White's Astronomy.</p> <p>Chauvenet's Spherical and Practical Astronomy.</p> <p>Bowditch's Navigator.</p> <p>American Ephemeris and Nautical Almanac.</p> <p>Bowditch's Navigator.</p> <p>Navigation arranged as a text-book for the U. S. Naval Academy.</p>
<i>Mechanics and Applied Mathematics.</i>	3	1	METHOD OF LEAST SQUARES: The theory of least squares and probable errors; fundamental principles of the theory; practical methods and formulas; independent observations; conditioned observations.	Johnson's Method of Least Squares.
	3	3	APPLIED MECHANICS: Elasticity; stress and strain; theory of structures; strength and deflection of beams; beams of uniform resistance.	Cotterill's Applied Mechanics.
<i>Physics and Chemistry.</i>	2	4	PHYSICS: Recitations in electricity and magnetism; practical work in physical laboratory; determination of the constants of galvanometers; testing ammeters and voltmeters; running dynamos and electric motors and measuring their efficiency; experiments on the electric transmission of energy; testing cables and electric-light wires; experiments upon induction; practice in photography and micro-photography.	Same as second class year. Lecture Notes.

FOURTH YEAR—FIRST CLASS—LINE DIVISION—Continued.

SECOND TERM.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
<i>Seamanship, Naval Construction, and Naval Tactics.</i>	5	4	Course of the first term continued.	
<i>Ordnance and Gunnery.</i>	5	4	<p>GUNNERY: Accuracy and rapidity of fire; the probability of hitting objects of various forms; the mean and probable errors of guns; derivation of rules for correcting certain errors which arise in practice at sea; the penetration and effect of projectiles.</p> <p>ORDNANCE: The manufacture of guns; description of service guns; computation of the strength and shrinkage of guns; rifling; rotation and its influence on the motion of projectiles. The manufacture and use of gunpowder and other explosives; the force developed when explosives are fired in their own volume, and the equation of motion of the projectile in the bore of a gun on this hypothesis, and also on the hypothesis that the explosive burns progressively; the laws of burning of grains of gunpowder of various forms; the formulas of Noble and Abel connecting pressures with density of loading, and for determining the work of expansion in a gun; development of the principles involved in loading guns; formulas connecting muzzle velocities and pressures with the elements of loading.</p> <p>GUN CARRIAGES: Their construction and the mechanism employed in controlling and adjusting recoil, and the theory of such control.</p> <p>AMMUNITION: Its preparation and use.</p>	<p>Text-book of Ordnance and Gunnery (Naval Academy publication).</p> <p>The Elastic Strength of Guns (Naval Academy publication).</p> <p>Interior Ballistics (Naval Academy publication).</p> <p>Accuracy and probability of Fire (Naval Academy publication).</p>

FOURTH YEAR—FIRST CLASS—LINE DIVISION—Continued.

SECOND TERM—continued.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
<i>Astronomy, Navigation, and Surveying.</i>	4	4	<p>THEORY OF THE DEVIATION OF THE COMPASS, including the nature and causes of the several parts of the deviation, the determination of the vertical and horizontal forces of the earth and the ship, the causes and amount of the heeling error, the changes which take place upon a change of geographical position, the graphic representations of the amount and direction of the forces which act on the needle, and the mechanical correction of the deviation and the heeling errors. Navigation.</p> <p>HYDROGRAPHIC SURVEYING: The instruments used; selection and measurement of bases; determination of azimuth of base; triangulation; determination of heights; leveling; plotting a survey; hydrographical surveying; tidal observations; current observations; sailing directions; the form of the earth, with special reference to the construction of charts; projections; running surveys.</p>	<p>Howell's Theory of the Deviations of the Compass.</p> <p>Evans's Elementary Manual for the Deviations of the Compass in Iron Ships.</p> <p>Chauvenet's Spherical and Practical Astronomy.</p> <p>Howell's Marine Surveying.</p> <p>Projection Tables.</p> <p>Bowditch's Navigator.</p>
<i>English Studies, History and Law.</i>		3	International Law: Lectures, Friday, 7.30–9.30 p. m.	
<i>Physiology and Hygiene.</i>	1½	4	<p>PHYSIOLOGY AND HYGIENE: General description of the human body and its functions; hæmorrhage, its causes and methods of arrest; drowning, means of resuscitation therefrom; common accidents, measures to be adopted therein; ventilation, necessity for, and means of, in ships and houses; bathing, exercise, clothing; foods, digestibility of, methods of cooking; what the body requires and what it does not require; impure water, alcoholic drinks, tobacco, and other narcotics; their nature and their effects, in various amounts, on the human system; habits, their inheritance, formation, and correction; requisites for a healthy body and a sound mind; specific contagious diseases; lectures, notes, and illustrations.</p>	Cutter's Comprehensive Physiology.

FOURTH YEAR—FIRST CLASS—ENGINEER DIVISION

FIRST TERM.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
<i>Seamanship, Naval Construction, and Naval Tactics.</i>	3	4	NAVAL CONSTRUCTION: Definitions; history and practice of ship-building in wood, iron, and steel; systems of construction, subdivision and armoring; systems of pumping, draining, ventilating, steering, and hoisting; fittings in general; distribution of armor, guns and boats; special constructions; launching; types of ships; structural strength and strains; buoyancy and stability in the intact and in the damaged conditions; theory and observation of waves; rolling and pitching; principles of stowage; resistance, propulsion, and steering of ships; qualities of ships, construction and use of diagrams of qualities; the use of qualities.	White's Manual of Naval Architecture. Thearle's Naval Architecture. Thearle's Theoretical Naval Architecture.
<i>Steam Engineering.</i>	2	4	MARINE ENGINES: General description of modern marine engines and their dependencies; expansion of steam; mean pressure; piston speed; size of cylinders; stroke and revolutions; types of pistons; detailed construction of parts of a cylinder, connecting rod, crosshead, crank shaft, line shaft, frames and journals, thrust bearing; twisting and bending moments; stern tubes and bearings; types of condensers; details of construction; area of condensing surface; arrangement and efficiency of air, circulating, and feed pumps; details of size and construction; types of valves and valve gear; expansion valves and valve diagrams; propellers; theory, efficiency, and details of construction; the indicator and indicator diagrams; power of the engine with necessary calculations; materials used in the construction of machinery with reasons therefor.	Seaton's Marine Engine.
	3	4	DESIGNING MACHINERY: The strains to which machinery is subjected and the resistance offered to the strains; relative value of materials used in machinery; testing materials; principles and considerations governing the design, drawing, specifications, and proportioning of various parts of boilers and engines, with practical applications in the designing room.	Unwin's Elements of Machine Design. Shock's Marine Boilers.
	2	4	FABRICATION: Practical work in the machine-shop.	

FOURTH YEAR—FIRST CLASS—ENGINEER DIVISION—Continued.

FIRST TERM—continued.

Department.	Number of recitations a week.	Number of months.	Subjects.	Text-books.
<i>Mechanics and Applied Mathematics.</i>	3	4	Same as for line division.	
<i>Physics and Chemistry.</i>	3	4	Heat and Analytical Chemistry.	Same as for second class year. Lecture Notes.

SECOND TERM.

<i>Seamanship, Naval Construction, and Naval Tactics.</i>	5	4	Course of the first term continued.	
<i>Steam Engineering.</i>	2	4	MARINE ENGINES: Continuation of first term course. Physical properties of steam; convertibility of heat and work; theory of the steam-engine; air and heat engines; efficiency of an engine; theoretical considerations governing the expansion of steam; effects of clearance, wire drawing, jacketing, liquefaction and re-evaporation; experiments on the steam-engine, and the methods of determining its efficiency	Seaton's Marine Engine. Cotterill's Steam Engine Considered as a Heat Machine.
	3	4	BOILERS: Types and efficiency of marine boilers; combustion; fuel; evaporation; draught; construction of boilers in detail, and materials used in them; details of fitting and attachments; causes of deterioration; care and preservation of boilers.	Shock's Steam Boilers.
	3	4	DESIGNING MACHINERY: Continuation of first term course.	Unwin's Elements of Machine Design. Shock's Marine Boilers.
<i>Mechanics and Applied Mathematics.</i>	3	4	APPLIED MECHANICS: Kinematics and dynamics of machines; transmission and conversion of energy by fluids.	Cotterill's Applied Mechanics.
<i>Physiology and Hygiene.</i>	1½	4	Same as for line division.	

ASSIGNMENT OF TIME.

Departments.	Fourth class.		Third class.		Second class.		First class, line division.		First class, engineer division.	
	1st term.	2d term.	1st term.	2d term.	1st term.	2d term.	1st term.	2d term.	1st term.	2d term.
Seamanship, Naval Construction, and Naval Tactics							4	5	2	3
Ordnance and Gunnery							3	5		
Astronomy, Navigation, and Surveying						2	4	4		
Steam engineering.....					3	3			8	8
Mechanics and Applied Mathematics					5	5	3		3	3
Physics and Chemistry				5 F	5	4	2		3	
Mathematics.....	6	5	5	5						
English Studies, History, and Law....	5	5	4	1				F		
Modern Languages	5	5½	3	2	1 F	½ F				
Mechanical Drawing.....			4	2½	2	1				
Physiology and Hygiene.....								1½		1½

F, Friday, 7.30 to 9.30 p. m.

PROGRAMME OF RECITATIONS.

FIRST TERM—1889 '90.

Departments.	Fourth class.	Third class.	Second class.	First class, line division.	First class, engineer division.
Astronomy, Navigation, and Surveying.....					
English Studies, History, and Law.....	M. T. W. Th. F. (2).....	M. F. S. (1), T. (3).....		M. W. F. S. (1).....	
Mathematics.....	M. T. W. Th. F. S. (1).....	M. T. W. Th. F. (2).....			
Mechanical Drawing.....		M. W. Th. F. (3).....	T. (3), S. (1).....		
Mechanics and Applied Mathematics.....			M. T. W. Th. F. (1).....	M. W. F. (2).....	M. W. F. (2).....
Modern Languages.....	M. T. W. Th. F. (3).....	T. W. Th. (1).....	M. (2), F. (7.30 to 9.30 p.m.)*.....		
Ordnance and Gunnery.....				T. Th. (2), F. (3).....	
Physics and Chemistry.....			M. (3), T. W. Th. F. (2).....	T. Th. (1).....	T. Th. F. (1).....
Seamanship and Naval Construction.....				M. T. W. Th. (3).....	M. W. (3).....
Steam Engineering.....			W. Th. F. (3).....		M. (1), T. (2) (3), W. (1), Th. (2) (3), F. (3), S. (1).

SECOND TERM.

Astronomy, Navigation, and Surveying.....			W. F. (3).....	M. T. Th. F. (1).....	
English Studies, History, and Law.....		M. (1).....		F. (7.30 to 9.30 p.m.)*.....	
Mathematics.....	M. T. W. Th. F. (1).....	M. T. W. Th. F. (2).....			
Mechanical Drawing.....		T. Th. (3), S. (1)†.....	W. (2).....		
Mechanics and Applied Mathematics.....			M. T. W. Th. F. (1).....		M. T. Th. (2).....
Modern Languages.....	M. T. W. Th. F. (2), S. (1)†.....	W. F. (3).....	S. (1)†, F. (7.30 to 9.30 p.m.)*.....		
Ordnance and Gunnery.....				M. T. W. Th. F. (2).....	
Physics and Chemistry.....		M. (3), T. W. Th. F. (1), F. (7.30 to 9.30 p.m.)*.....	M. T. Th. F. (2).....		W. (3), S. (1)†.....
Physiology and Hygiene.....				W. (3), S. (1)†.....	M. F. (3), W. (1).....
Seamanship and Naval Construction.....				M. T. Th. F. (3), W. (1).....	M. (1), T. (1) (3), W. (2), Th. (1) (3), F. (1) (2), F. (7.30 to 9.30 p.m.)*.....
Steam Engineering.....			M. T. Th. (3).....		

* Lectures and practical instruction.

† Saturday period, second term, from January 31 to March 10.

TABLE OF CO-EFFICIENTS.

Department and subjects.	Fourth class.	Third class.	Second class.	First class, line division.	First class, engineer division.	Maxima for four years, line division.	Maxima for four years, engineer division.	Maxima for final graduation, line division.	Maxima for final graduation, engineer division.
<i>Seamanship, Naval Construction, and Naval Tactics.</i>									
Seamanship, Ship Building, and Naval Tactics				17	9		36	56	32
Cruise Reports, Navigation Note Books, Journals, and Station Bills								24	36
Practice Cruise				5		88			
<i>Ordnance and Gunnery.</i>									
Ordnance Instructions, Infantry Tactics, and Gunnery				*18		72		44	
Ordnance and Gunnery									
<i>Astronomy, Navigation, and Surveying.</i>									
Astronomy, Navigation, and Surveying			3	13			12	44	
Practice Cruise				3		76			
<i>Steam Engineering.</i>									
Steam Machinery, Marine Engines, and Boilers			12					20	
Summer Practical Work			3		6	60			
Marine Engines					10				88
Designing Machinery					13				
Fabrication					6				
Boilers					7		228		56
<i>Mechanics and Applied Mathematics.</i>									
Differential and Integral Calculus, and Mechanics			15						
Least Squares and Strength of Materials				5	5	80			
Mechanics					6		104		
<i>Physics and Chemistry.</i>									
Chemistry and Physics		6			6				
Physics			12						
Physics				5		92	96		
<i>Mathematics.</i>									
Algebra and Geometry	6								
Trigonometry, Analytical Geometry, and Descriptive Geometry		12				72	72		
<i>English Studies, History, and Law.</i>									
English and History	6								
English, History, and Law		6		2		56	48	24	
<i>Modern Languages.</i>									
French, Spanish, and German	6	6	5			68	68	28	28
<i>Mechanical Drawing.</i>									
Mechanical Drawing		6	4			40	40		
<i>Miscellaneous.</i>									
Physiology and Hygiene				3	3	12	12		
Conduct	1	2	3	5	5	44	44		
Maxima for each class	76	152	228	304	304	760	760	240	240
Deduction for each demerit	0.013	0.032	0.060	0.133	0.133				

*In making up the standing for a year the second term is given double the weight of the first term.

PRACTICAL INSTRUCTION OF CADETS.

SEAMANSHIP.

Knotting and splicing; compass and lead line; ship nomenclature; cutting and fitting hemp rigging; cutting and fitting wire rigging; rowing, and the management of boats under oars and under sail; sail making; making up, bending, unbending, and handling sails; rigging ship; stripping ship; shifting spars; getting under way and anchoring; evolutions with vessels under sail and under steam; signaling, Army and Navy code; management of steam launches; steam fleet tactics with steam launches.

ORDNANCE AND GUNNERY.

School of the soldier; school of the company; school of the battalion (infantry); skirmish drill; school of the battery; school of the battalion (artillery); exercises with broadside guns, pivot guns, monitor guns, mortars, boat howitzers, and machine guns; target practice with small-arms; target practice with mortars; target practice afloat with machine guns, rifled howitzers, and great guns; small-sword exercise; broad-sword exercise; handling and firing torpedoes; determination of the strength and elasticity of gun-metal with testing machine; determination of muzzle velocities with the Schultz chronoscope; determination of pressures in guns by means of pressure gauges; experimental determination of range tables, also of the jump and the drift; application of photography to ordnance purposes; the preparation and inspection of ordnance material.

ASTRONOMY, NAVIGATION, AND SURVEYING.

Practical navigation; surveying and constructing a chart of a portion of the Severn River.

Swinging an iron ship, and observing the deviations and the times of vibration of horizontal and vertical needles on different courses; from these observations finding the approximate and the exact co-efficients, and the horizontal and the vertical forces acting on the standard and steering compasses; also finding the heeling co-efficients for the same compasses without heeling the ship.

STEAM ENGINEERING.

Vise-bench work; forging; boiler-making; pattern-making; machine-tool work; taking apart and putting together engines; running engines of launches, vessels, and monitors.

PROGRAMME OF PRACTICAL INSTRUCTION.

When more than one kind of exercise is prescribed during a week the number of each exercise is indicated by a figure in parenthesis.

FIRST CLASS.

Aca- demic Months.	Weeks.	First division.	Second division.	Third division.	Fourth division.
Oct.....	1	Company (4).	Company (4).	Target great guns(4)	Steam tactics (4).
	2	Monitor (1).	Monitor (1).	Monitor (1).	Monitor (1).
	3	Battery (4).	Battery (4).	Steam tactics (4).	Target great guns (4)
	4	Monitor (1).	Monitor (1).	Monitor (1).	Monitor (1).
	5	Seamanship.	Seamanship.	Seamanship.	Seamanship.
Nov.....	1	Target great guns(4)	Steam tactics (4).	Company (4).	Company (4).
	2	Monitor (1).	Monitor (1).	Monitor (1).	Monitor (1).
	3	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	4	Steam tactics (4).	Target great guns(4)	Battery (4).	Battery (4).
Dec.....	1	Monitor (1).	Monitor (1).	Monitor (1).	Monitor (1).
	2	Battal'n infantry (4).	Battal'n infantry (4).	Battal'n infantry(4).	Battal'n infantry(4).
	3	Monitor (1).	Monitor (1).	Monitor (1).	Monitor (1).
	4	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
	5	Broadsword.	Steam.	Practical ordnance.	Steam.
	6	Steam.	Broadsword.	Steam.	Practical ordnance.
	7	Practical ordnance.	Steam.	Broadsword.	Steam.
Jan.....	1	Steam.	Practical ordnance.	Steam.	Broadsword.
	2	Small sword.	Steam.	Practical ordnance.	Steam.
	3	Steam.	Small sword.	Steam.	Practical ordnance.
	4	Practical ordnance.	Steam.	Small sword.	Steam.
	5	SEMI-ANNUAL EXAMINATION.			
Feb.....	1	Steam.	Practical ordnance.	Steam.	Small sword.
	2	Broadsword.	Steam.	Seamanship.	Steam.
	3	Steam.	Broadsword.	Steam.	Seamanship.
	4	Seamanship.	Steam.	Broadsword.	Steam.
Mar.....	1	Steam.	Seamanship.	Steam.	Broadsword.
	2	Deviat'n compass(4).	Deviat'n compass(4).	Deviat'n compass(4).	Deviat'n compass (4).
	3	Seamanship (1).	Seamanship (1).	Seamanship (1).	Seamanship (1).
	4	Seamanship.	Seamanship.	Seamanship.	Seamanship.
April....	1	General quarters.	General quarters.	General quarters.	General quarters.
	2	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	3	Target great guns (4)	Skirmish (4).	Steam tactics (4).	Torpedoes (4).
	4	General quarters (1).	General quarters (1).	General quarters (1).	General quarters (1).
	5	Skirmish (4).	Target great guns(4)	Torpedoes (4).	Steam tactics (4).
	6	Seamanship (1).	Seamanship (1).	Seamanship (1).	Seamanship (1).
	7	Steam tactics (4).	Torpedoes (4).	Target great guns (4)	Skirmish (4).
May.....	1	Seamanship (1).	Seamanship (1).	Seamanship (1).	Seamanship (1).
	2	Torpedoes (4).	Steam tactics (4).	Skirmish (4).	Target great guns (4)
	3	General quarters (1).	General quarters (1).	General quarters (1).	General quarters (1).
	4	Battal'n infantry (4).	Battal'n infantry(4).	Battal'n infantry(4).	Battal'n infantry(4).
	5	Seamanship (1).	Seamanship (1).	Seamanship (1).	Seamanship (1).
	6	Battal'n artillery(2).	Battal'n artillery(2).	Battal'n artillery(2).	Battal'n artillery (2).
	7	Seamanship (3).	Seamanship (3).	Seamanship (3).	Seamanship (3).
	8	Steam tactics (3).	Steam tactics (3).	Steam tactics (3).	Steam tactics (3).
	9	General quarters (2).	General quarters (2).	General quarters (2).	General quarters (2).
	10	M. Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	11	T. Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
	12	W. General quarters.	General quarters.	General quarters.	General quarters.
	13	Th. Steam tactics.	Steam tactics.	Steam tactics.	Steam tactics.
	14	F. Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	15	S. Seamanship.	Seamanship.	Seamanship.	Seamanship.
June 1 to 10.	ANNUAL EXAMINATION.				
June 10 to Aug. 28.	Practice cruise.				
Sept.....	On leave.				

SECOND CLASS.

Academic Months.	Weeks.	First division.	Second division.	Third division.	Fourth division.
Oct.	1	Company.	Company.	Pivot guns.	Steam launches.
	2	Battery.	Battery.	Steam launches.	Pivot guns.
	3	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	4	Pivot guns.	Steam launches.	Company.	Company.
Nov.	1	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	2	Steam launches.	Pivot guns.	Battery.	Battery.
	3	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	4	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
Dec.	1	Small sword.	Steam.	Navy signals.	Steam.
	2	Steam.	Small sword.	Steam.	Navy signals.
	3	Navy signals.	Steam.	Small sword.	Steam.
	4				
Jan.	1	Steam.	Navy signals.	Steam.	Small sword.
	2	Broadsword.	Steam.	Seamanship.	Steam.
	3	Steam.	Broadsword.	Steam.	Seamanship.
	4	Seamanship.	Steam.	Broadsword.	Steam.
	5	SEMI-ANNUAL EXAMINATION.			
Feb.	1	Steam.	Seamanship.	Steam.	Broadsword.
	2	Small sword.	Steam.	Practical ordnance.	Steam.
	3	Steam.	Small sword.	Steam.	Practical ordnance.
	4	Practical ordnance.	Steam.	Small sword.	Steam.
Mar.	1	Steam.	Practical ordnance.	Steam.	Small sword.
	2	Broadsword (4).	Broadsword (4).	Broadsword (4).	Broadsword (4).
	3	Seamanship (1).	Seamanship (1).	Seamanship (1).	Seamanship (1).
	4	Seamanship.	Seamanship.	Seamanship.	Seamanship.
April.	1	General quarters.	General quarters.	General quarters.	General quarters.
	2	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	3	Target great guns (4).	Skirmish (4).	Steam tactics (4).	Target machine guns (4).
	4	General quarters (1).	General quarters (1).	General quarters (1).	General quarters (1).
	5	Skirmish (4).	Target great guns (4).	Target machine guns (4).	Steam tactics (4).
	6	Seamanship (1).	Seamanship (1).	Seamanship (1).	Seamanship (1).
	7	Steam tactics (4).	Target machine guns (4).	Target great guns (4).	Skirmish (4).
May.	1	Seamanship (1).	Seamanship (1).	Seamanship (1).	Seamanship (1).
	2	Target machine guns (4).	Steam tactics (4).	Skirmish (4).	Target great guns (4).
	3	General quarters (1).	General quarters (1).	General quarters (1).	General quarters (1).
	4	Battal'n infantry (4).	Battal'n infantry (4).	Battal'n infantry (4).	Battal'n infantry (4).
	5	Seamanship (1).	Seamanship (1).	Seamanship (1).	Seamanship (1).
	6	Battal'n artillery (2).	Battal'n artillery (2).	Battal'n artillery (2).	Battal'n artillery (2).
	7	Seamanship (3).	Seamanship (3).	Seamanship (3).	Seamanship (3).
	8	Steam tactics (3).	Steam tactics (3).	Steam tactics (3).	Steam tactics (3).
	9	General quarters (2).	General quarters (2).	General quarters (2).	General quarters (2).
(Fifth week.)	M.	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	T.	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
	W.	General quarters.	General quarters.	General quarters.	General quarters.
	Th.	Steam tactics.	Steam tactics.	Steam tactics.	Steam tactics.
	F.	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	S.	Seamanship.	Seamanship.	Seamanship.	Seamanship.
June 1 to 10	ANNUAL EXAMINATION.				

SECOND CLASS.

Summer months.	Weeks.	First division.	Second division.	Third division.	Fourth division.
	1	Machine-shop a. m. Target machine-guns p. m.	Machine-shop a. m. Howitzers afloat p. m.	Machine-shop a. m. Signals p. m.	Machine-shop a. m. Target howitzers p. m.
	2	Machine-shop a. m. Target howitzers p. m.	Machine-shop a. m. Target machine-guns p. m.	Machine-shop a. m. Howitzers afloat p. m.	Machine-shop a. m. Signals p. m.
	3	Machine-shop a. m. Signals p. m.	Machine-shop a. m. Target howitzers p. m.	Machine-shop a. m. Target machine-guns p. m.	Machine-shop a. m. Howitzers afloat p. m.
	4	Running steam cutters a. m. Howitzers afloat p. m.	Running steam cutters a. m. Signals p. m.	Running steam cutters a. m. Target howitzers p. m.	Running steam cutters a. m. Target machine-guns.
	5	Machine-shop a. m. Boats p. m.	Machine-shop a. m. Boats p. m.	Machine-shop a. m. Boats p. m.	Machine-shop a. m. Boats p. m.
	6	Machine-shop a. m. Target great guns p. m.	Machine-shop a. m. Target small arms p. m.	Machine-shop a. m. Boats p. m.	Machine-shop a. m. Steam tactics p. m.
	7	Machine-shop a. m. Steam tactics p. m.	Machine-shop a. m. Target great guns p. m.	Machine-shop a. m. Target small arms p. m.	Machine-shop a. m. Boats p. m.
	8	Machine-shop a. m. Boats p. m.	Machine-shop a. m. Steam tactics p. m.	Machine-shop a. m. Target great guns p. m.	Machine-shop a. m. Target small arms p. m.
	9	Machine-shop a. m. Target small arms p. m.	Machine-shop a. m. Boats p. m.	Machine-shop a. m. Steam tactics p. m.	Machine-shop a. m. Target great guns p. m.
	10	Machine-shop a. m. Boats p. m.	Machine-shop a. m. Boats p. m.	Machine-shop a. m. Boats p. m.	Machine-shop a. m. Boats p. m.
Sept.	1	} On leave.	On leave.	On leave.	On leave.
	2				
	3				
	4				

THIRD CLASS.

Aca- demic Months.	Weeks.	First division.	Second division.	Third division.	Fourth division.
Oct.....	1	Company.	Company.	Pivot guns.	Boats.
	2	Battery.	Battery.	Boats.	Pivot guns.
	3	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	4	Pivot guns.	Boats.	Company.	Company.
Nov.....	1	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	2	Boats.	Pivot guns.	Battery.	Battery.
	3	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	4	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
Dec.....	1	Small sword.	Seamanship.	Broadside guns.	Rigging loft.
	2	Rigging loft.	Small sword.	Seamanship.	Broadside guns.
	3	Broadside guns.	Rigging loft.	Small sword.	Seamanship.
Jan.....	1	Seamanship.	Broadside guns.	Rigging loft.	Small sword.
	2	Small sword.	Target small arms.	Broadside guns.	Rigging loft.
	3	Rigging loft.	Small sword.	Target small arms.	Broadside guns.
	4	Broadside guns.	Rigging loft.	Small sword.	Target small arms.
	5	SEMI-ANNUAL EXAMINATION.			
Feb.....	1	Target small arms.	Broadside guns.	Rigging loft.	Small sword.
	2	Small sword.	Target pistol.	Army signals.	Rigging loft.
	3	Rigging loft.	Small sword.	Target pistol.	Army signals.
	4	Army signals.	Rigging loft.	Small sword.	Target pistol.
Mar.....	1	Target pistol.	Army signals.	Rigging loft.	Small sword.
	2	Pivot guns (4).	Pivot guns (4).	Pivot guns (4).	Pivot guns (4).
	3	Seamanship (1).	Seamanship (1).	Seamanship (1).	Seamanship (1).
	4	Seamanship.	Seamanship.	Seamanship.	Seamanship.
April....	1	General quarters.	General quarters.	General quarters.	General quarters.
	2	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	3	Target sm'll arms (4).	Skirmish (4).	Seamanship (4).	Boat (4).
	4	General quarters (1).	General quarters (1).	General quarters (1).	General quarters (1).
	5	Skirmish (4).	Target sm'll arms (4).	Boats (4).	Seamanship.
	6	Seamanship (1).	Seamanship (1).	Seamanship (1).	Seamanship (1).
	7	Seamanship.	Boats (4).	Target sm'll arms (4).	Skirmish (4).
May.....	1	Boats (4).	Seamanship (1).	Seamanship (1).	Seamanship (1).
	2	General quarters (1).	General quarters (1).	General quarters (1).	Target sm'll arms (4).
	3	Battal'n infantry (4).	Battal'n infantry (4).	Battal'n infantry (4).	General quarters (1).
	4	Seamanship (1).	Seamanship (1).	Seamanship (1).	Battl'n infantry (4).
	5	Battal'n artillery (2).	Battal'n artillery (2).	Battal'n artillery (2).	Seamanship (1).
	6	Seamanship (3).	Seamanship (3).	Seamanship (3).	Battal'n artillery (2).
	7	Small sword (3).	Small sword (3).	Small sword (3).	Seamanship (3).
	8	General quarters (2).	General quarters (2).	General quarters (2).	Small sword (3).
(Fifth week.)	M.	Battalion infantry.	Battalion infantry.	Battalion infantry.	General quarters (2).
	T.	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion infantry.
	W.	General quarters.	General quarters.	General quarters.	Battalion artillery.
	Th.	Boats.	Boats.	Boats.	General quarters.
	F.	Battalion infantry.	Battalion infantry.	Battalion infantry.	Boats.
	S.	Seamanship.	Seamanship.	Seamanship.	Battalion infantry.
June 1 to 8.	ANNUAL EXAMINATION.				
June 9 to Aug. 30.	Practice cruise.				
Sept.....	On leave.				

FOURTH CLASS.

Aca- demic Months.	Weeks.	First division.	Second division.	Third division.	Fourth division.
Oct.	1	Company.	Company.	Gymnastics.	Boats.
	2	Battery.	Battery.	Boats.	Gymnastics.
	3	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	4	Gymnastics.	Boats.	Company.	Company.
Nov.	1	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	2	Boats.	Gymnastics.	Battery.	Battery.
	3	Battalion infantry.	Battalion infantry.	Battalion infantry.	Battalion infantry.
	4	Battalion artillery.	Battalion artillery.	Battalion artillery.	Battalion artillery.
Dec.	1	Dancing.	Gymnastics.	Broadside guns.	Rigging loft.
	2	Rigging loft.	Dancing.	Gymnastics.	Broadside guns.
	3	Broadside guns.	Rigging loft.	Dancing.	Gymnastics.
Jan.	1	Gymnastics.	Broadside guns.	Rigging loft.	Dancing.
	2	Dancing.	Gymnastics.	Broadside guns.	Rigging loft.
	3	Rigging loft.	Dancing.	Gymnastics.	Broadside guns.
	4	Broadside guns.	Rigging loft.	Dancing.	Gymnastics.
	5	SEMI-ANNUAL EXAMINATION.			
Feb.	1	Gymnastics.	Broadside guns.	Rigging loft.	Dancing.
	2	Dancing.	Gymnastics.	Dancing.	Rigging loft.
	3	Rigging loft.	Dancing.	Gymnastics.	Dancing.
	4	Dancing.	Rigging loft.	Dancing.	Gymnastics.
Mar.	1	Gymnastics.	Dancing.	Rigging loft.	Dancing.
	2	Company (4).	Company (4).	Company (4).	Company (4).
	3	Seamanship (1).	Seamanship (1).	Seamanship (1).	Seamanship (1).
	4	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	5	General quarters.	General quarters.	General quarters.	General quarters.
April.	1	Seamanship.	Seamanship.	Seamanship.	Seamanship.
	2	Rigging loft (4).	Skirmish (4).	Seamanship (4).	Boats (4).
	3	General quarters (1).	General quarters (1).	General quarters (1).	General quarters (1).
	4	Skirmish (4).	Rigging loft (4).	Boats (4).	Seamanship.
	5	Seamanship (1).	Seamanship (1).	Seamanship (1).	Seamanship.
May.	1	Boats (4).	Boats (4).	Rigging loft (4).	Skirmish (4).
	2	General quarters (1).	Seamanship (1).	Seamanship (1).	Seamanship (1).
	3	Battal'n infantry (4).	General quarters (1).	Skirmish (4).	Rigging loft (4).
	4	Battal'n artillery (2).	Battal'n infantry (4).	Battal'n infantry (4).	General quarters (1).
	5	Seamanship (3).	Battal'n artillery (2).	Battal'n infantry (4).	Battal'n infantry (4).
	6	Seamanship (3).	Seamanship (1).	Battal'n artillery (2).	Battal'n infantry (4).
	7	General quarters (2).	Battal'n artillery (2).	Battal'n artillery (2).	Seamanship (1).
	8	Battalion infantry.	Seamanship (3).	Seamanship (3).	Seamanship (3).
	9	Battalion artillery.	General quarters (2).	General quarters (2).	General quarters (2).
	10	General quarters.	Battalion infantry.	Battalion infantry.	General quarters.
	11	Boats.	Battalion artillery.	Battalion artillery.	Battalion artillery.
	12	Battalion infantry.	General quarters.	General quarters.	General quarters.
	13	Seamanship.	Boats.	Boats.	Boats.
	14		Battalion infantry.	Battalion infantry.	Battalion infantry.
	15		Seamanship.	Seamanship.	Seamanship.
	16				
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June 1 to 8.		ANNUAL EXAMINATION.			
June 9 to Aug. 30.		Practice cruise.			
Sept.	1	School of soldier.*	School of soldier.*	School of soldier.*	School of soldier.*
	2	School of soldier.*	School of soldier.*	School of soldier.*	School of soldier.*
	3	School of soldier.*	School of soldier.*	School of soldier.*	School of soldier.*
	4	Sch. sec. howitzer.	Sch. sec. howitzer.	Sch. sec. howitzer.	Sch. sec. howitzer.
	5	School of soldier.*	School of soldier.*	School of soldier.*	School of soldier.*
	6	Sch. sec. howitzer.	Sch. sec. howitzer.	Sch. sec. howitzer.	Sch. sec. howitzer.

* Swimming daily

SUMMARY OF PRACTICAL INSTRUCTION.

Kind of instruction.	During the academic year.				Total number of instructions during academic year.	During summer months.				During month of September, fourth class.	Total number of instructions, exclusive of practice cruise.
	First class.	Second class.	Third class.	Fourth class.		First class.	Second class.	Third class.	Fourth class.		
Seamanship, including stripping and rigging <i>Wyoming</i>	33	33	37	35	138	(*)	.....	(*)	(*)	.....	138
Rigging loft .....	.....	.....	15	19	34	.....	.....	.....	.....	.....	34
Boats under oars, or sail .....	.....	.....	10	10	20	(*)	15	(*)	(*)	.....	35
Naval tactics with steam launches	12	8	.....	.....	20	.....	5	.....	.....	.....	25
Navy signals, day .....	.....	5	.....	.....	5	(*)	3	.....	.....	.....	8
Navy signals, night .....	.....	.....	.....	.....	.....	(*)	3	.....	.....	.....	3
Army signals, day .....	.....	.....	5	.....	5	.....	2	.....	.....	.....	7
Army signals, night .....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	2
Monitor, with great gun practice	5	.....	.....	.....	5	.....	.....	.....	.....	.....	5
General quarters	6	6	6	6	24	(*)	.....	(*)	(*)	.....	24
General quarters, with target practice	4	4	4	4	16	(*)	.....	(*)	(*)	.....	16
Target practice, great guns	8	4	.....	.....	12	.....	5	.....	.....	.....	17
Pivot guns .....	.....	5	9	.....	14	.....	.....	.....	.....	.....	14
Broadside guns .....	.....	.....	10	10	20	(*)	.....	(*)	(*)	.....	20
Torpedoes	4	.....	.....	.....	4	.....	.....	.....	.....	.....	4
Practical ordnance	10	5	.....	.....	15	.....	.....	.....	.....	.....	15
Howitzers afloat .....	.....	.....	.....	.....	.....	.....	5	.....	.....	.....	5
Target practice, howitzers .....	.....	.....	.....	.....	.....	.....	5	.....	.....	.....	5
School of section .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	10	10
School of battery	4	5	5	5	19	.....	.....	.....	.....	.....	19
School of battalion artillery	8	8	8	8	32	.....	.....	.....	.....	.....	32
Target practice, machine guns .....	.....	4	.....	.....	4	.....	5	.....	.....	.....	9
Target practice, small-arms .....	.....	.....	9	.....	9	.....	5	.....	.....	.....	14
Target practice, pistols .....	.....	.....	5	.....	5	.....	.....	.....	.....	.....	5
School of the soldier .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	24	24
School of the company	4	5	5	9	23	.....	.....	.....	.....	.....	23

* Practice cruise.

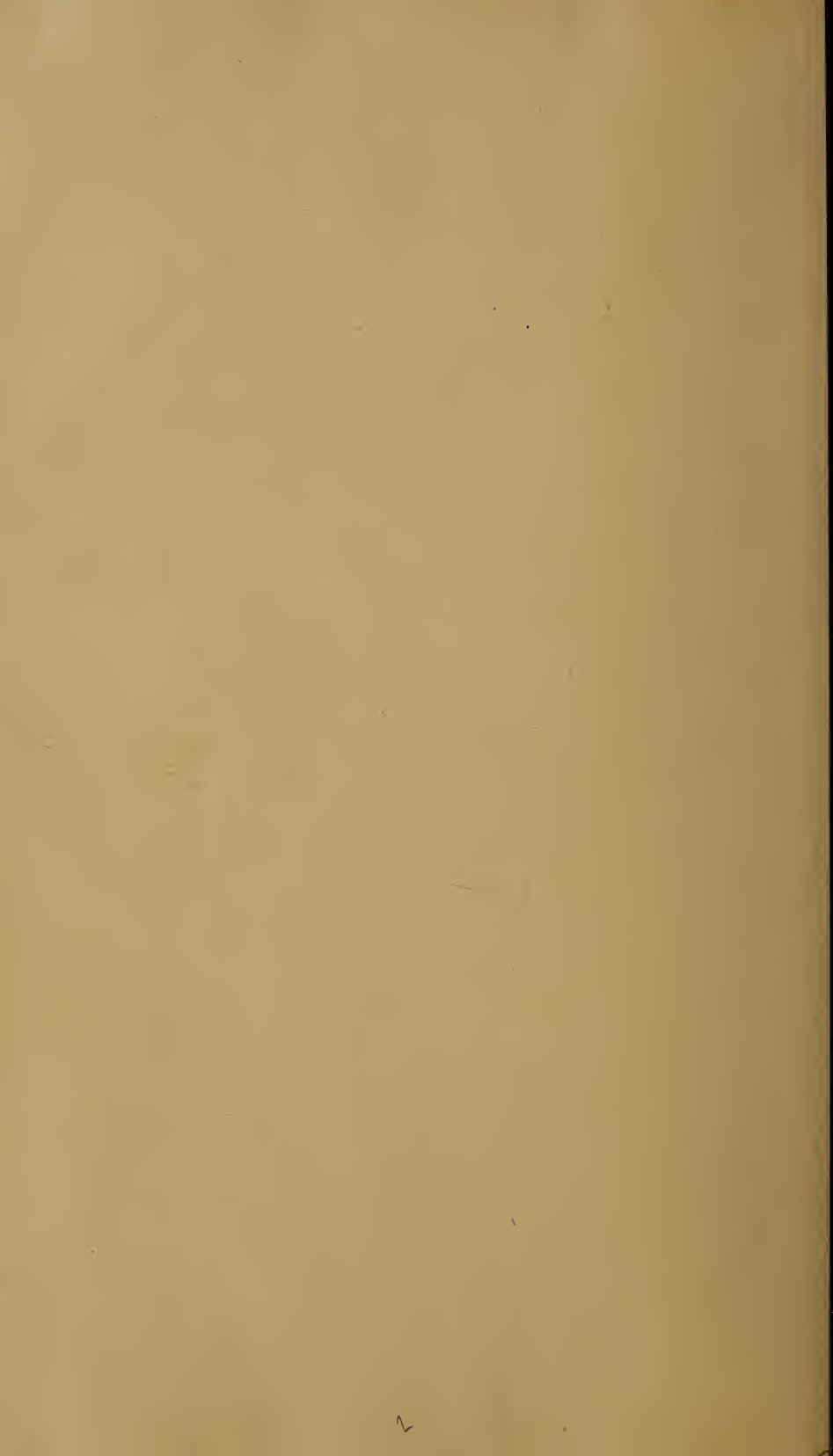
SUMMARY OF PRACTICAL INSTRUCTION—Continued.

Kind of instruction.	During the academic year.				Total number of instructions during academic year.	During summer months.				Total number of instructions, exclusive of practice cruise.
	First class.	Second class.	Third class.	Fourth class.		First class.	Second class.	Third class.	Fourth class.	
School of the battalion, infantry	10	11	11	11	42	.....	.....	.....	.....	43
Skirmish drill	4	4	4	4	16	.....	.....	.....	.....	16
Broadsword	10	9	.....	.....	19	.....	.....	.....	.....	19
Small sword	5	10	18	.....	33	.....	.....	.....	.....	33
Practical instruction in deviation of compass	4	.....	.....	.....	4	(*)	.....	.....	.....	4
Practical instruction, navigation	†14	†13	.....	.....	.....	(*)	.....	.....	.....	†27
Practical instruction, surveying	†10	.....	.....	.....	.....	.....	.....	.....	.....	†10
Machine-shop and running shop engines	30 and †13	30	.....	.....	60	.....	54	.....	.....	114 and †13
Running steam launches .....	.....	5	.....	.....	5	.....	6	.....	.....	11
Practical instruction in chemistry .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gymnastics .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Swimming .....	.....	.....	.....	20	20	.....	.....	.....	.....	20
Dancing .....	.....	.....	.....	20	20	.....	.....	.....	24	24
	.....	.....	.....	.....	.....	.....	.....	.....	.....	20

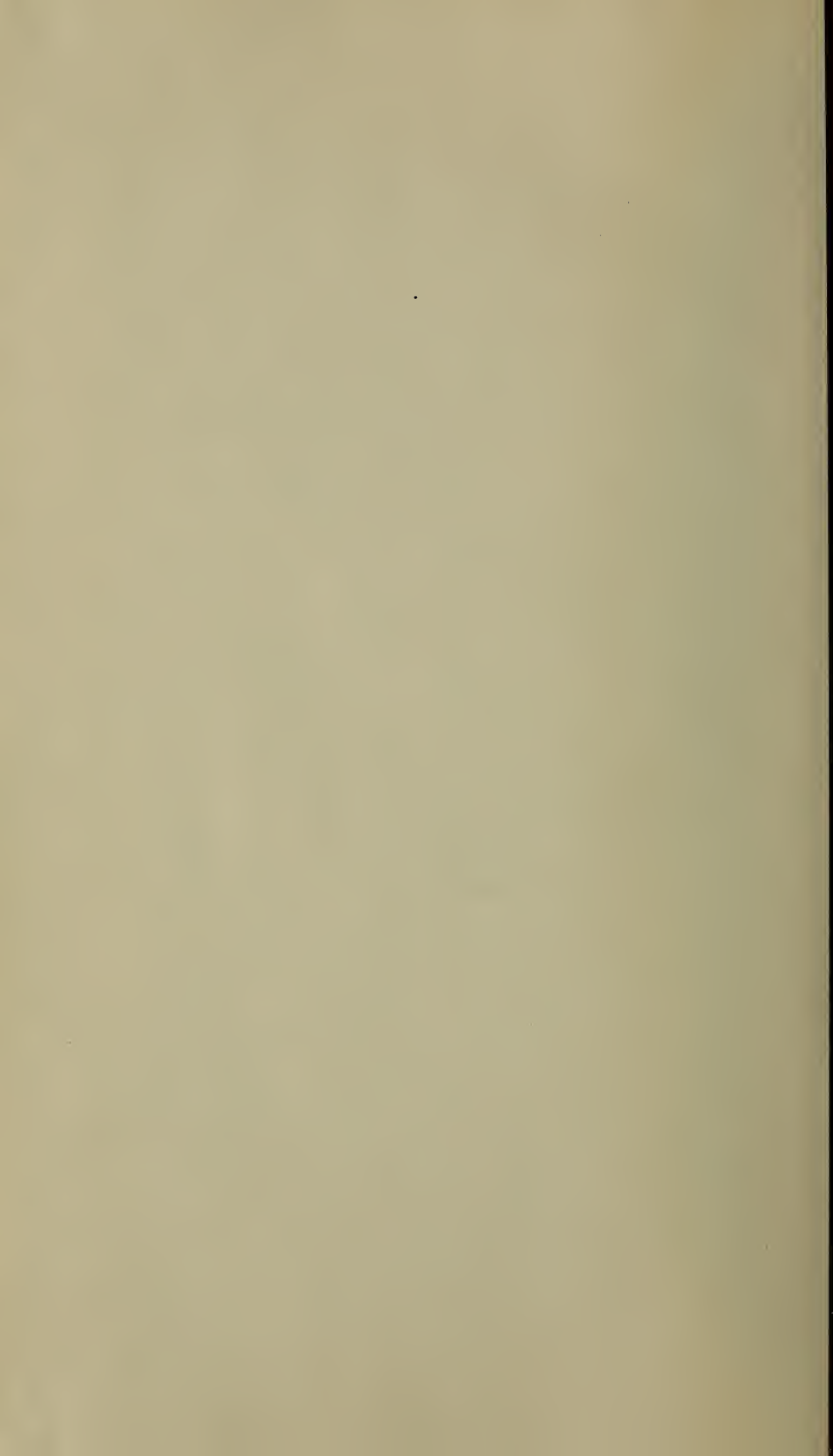
* Practice cruise.

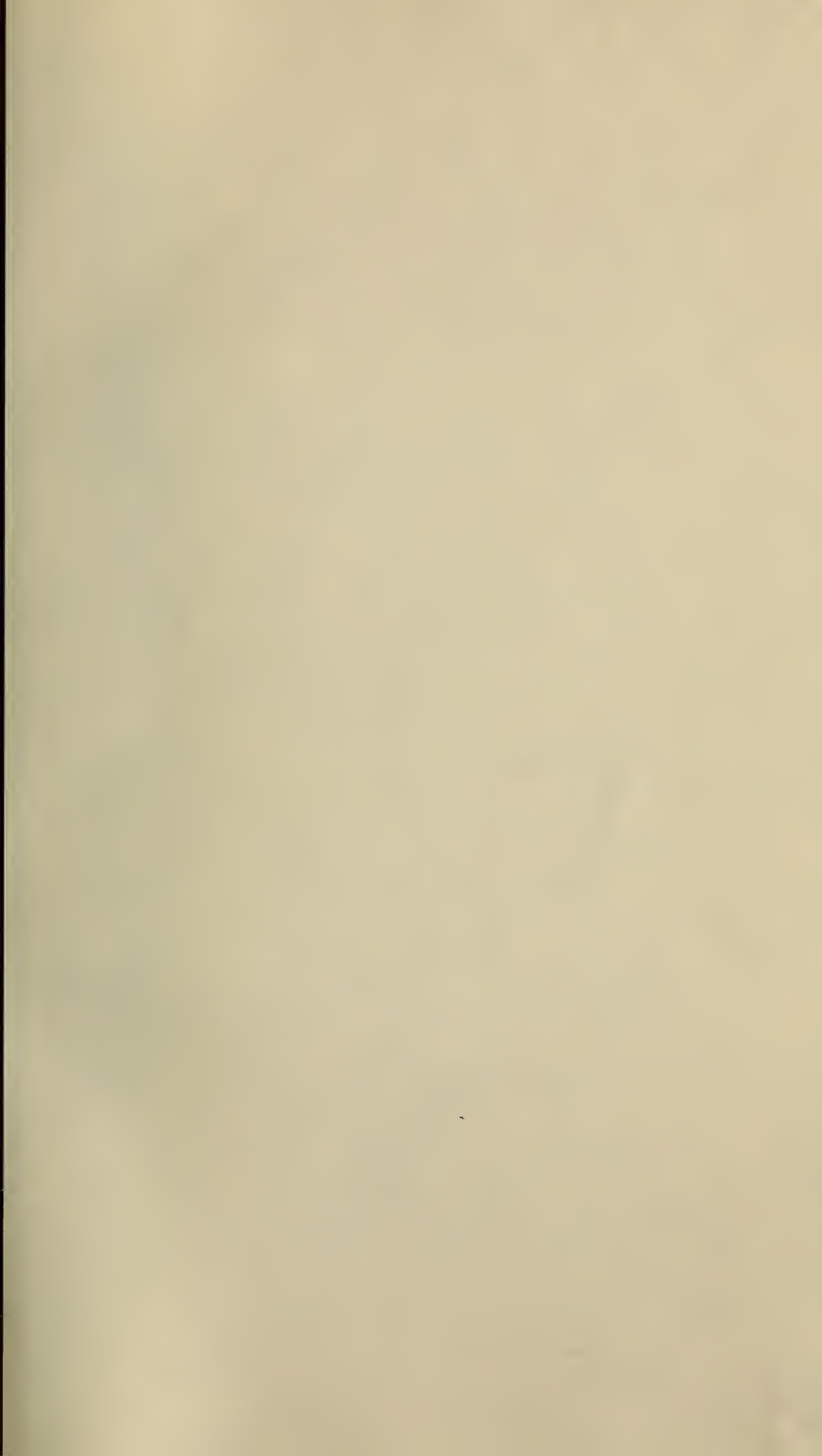
† Study periods.

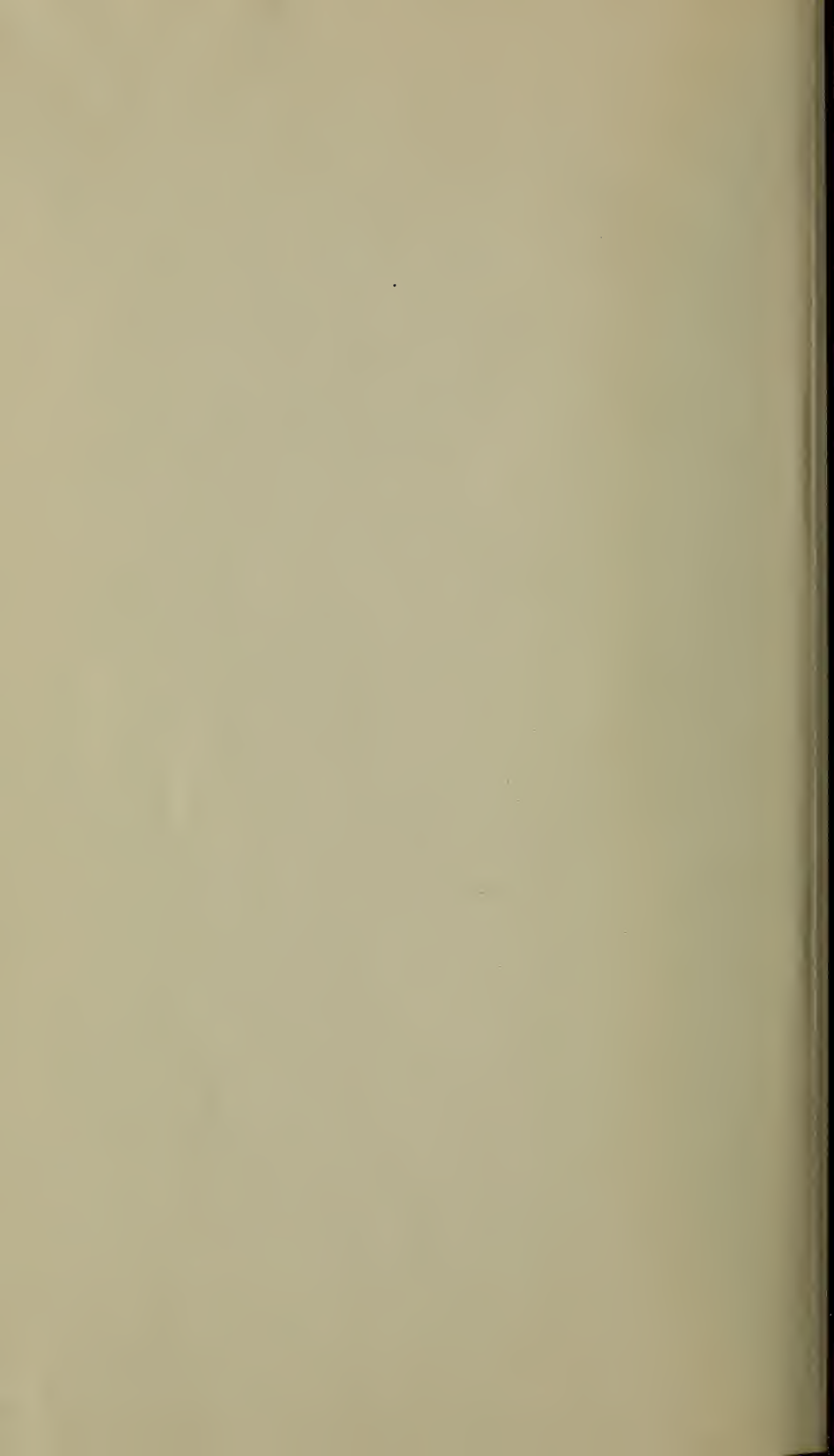
The instructions in seamanship and gunnery on board of the *Wyoming*, *Passaic*, and *Standish* are also made instructions in running and managing the engines and boilers of those vessels. The instructions in naval tactics are also made instructions in running and managing the engines and boilers of the steam launches when practicable.











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